

**Pioneer**

# ***Service Manual***

ORDER NO.  
**CRT2404**

MULTI-CD CONTROL HIGH POWER CASSETTE PLAYER WITH FM/AM TUNER

# **KEH-P490**

**X1N/UC**

## **KEH-P4900**

**X1N/UC**

## **KEH-P4950**

**X1N/ES**

● This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech. Module	Remarks
CX-1011	CRT2406	3L	Cassette Mech. Module : Mechanism Description Disassembly ,Adjustment
KEH-P490/X1M/UC	CRT2398		
KEH-P4900/X1M/UC	CRT2398		
KEH-P4950/X1M/ES	CRT2398		

**PIONEER CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan  
**PIONEER ELECTRONICS SERVICE INC.** P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.  
**PIONEER ELECTRONIC [EUROPE] N.V.** Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium  
**PIONEER ELECTRONICS ASIACENTRE PTE.LTD.** 253 Alexandra Road, #04-01, Singapore 159936

© PIONEER CORPORATION 1999

K-ZZB. DEC. 1999 Printed in Japan

## EXPLODED VIEWS AND PARTS LIST

## PACKING (Page 2)

## ● PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.	
			KEH-P490/X1M/UC	KEH-P490/X1N/UC
	12	Carton	CHG3893	CHG3905
	13	Contain Box	CHL3893	CHL3905
	14	Protector	CHP2244	CHP2252
	15	Protector	CHP2243	CHP2251

Mark	No.	Description	Part No.	
			KEH-P4900/X1M/UC	KEH-P4900/X1N/UC
	12	Carton	CHG3889	CHG3902
	13	Contain Box	CHL3889	CHL3902
	14	Protector	CHP2244	CHP2252
	15	Protector	CHP2243	CHP2251

Mark	No.	Description	Part No.	
			KEH-P4950/X1M/ES	KEH-P4950/X1N/ES
	12	Carton	CHG3890	CHG3903
	13	Contain Box	CHL3890	CHL3903
	14	Protector	CHP2244	CHP2252
	15	Protector	CHP2243	CHP2251

## EXTERIOR (Page 4)

## ● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.	
			KEH-P490/X1M/UC KEH-P4900/X1M/UC KEH-P4950/X1M/ES	KEH-P490/X1N/UC KEH-P4900/X1N/UC KEH-P4950/X1N/ES
	29	Holder Unit	CXB2687	CNC6798(Holder)
	68	Cassette Mechanism Module	EXK4000	EXK4005

**D** DECK UNIT

A



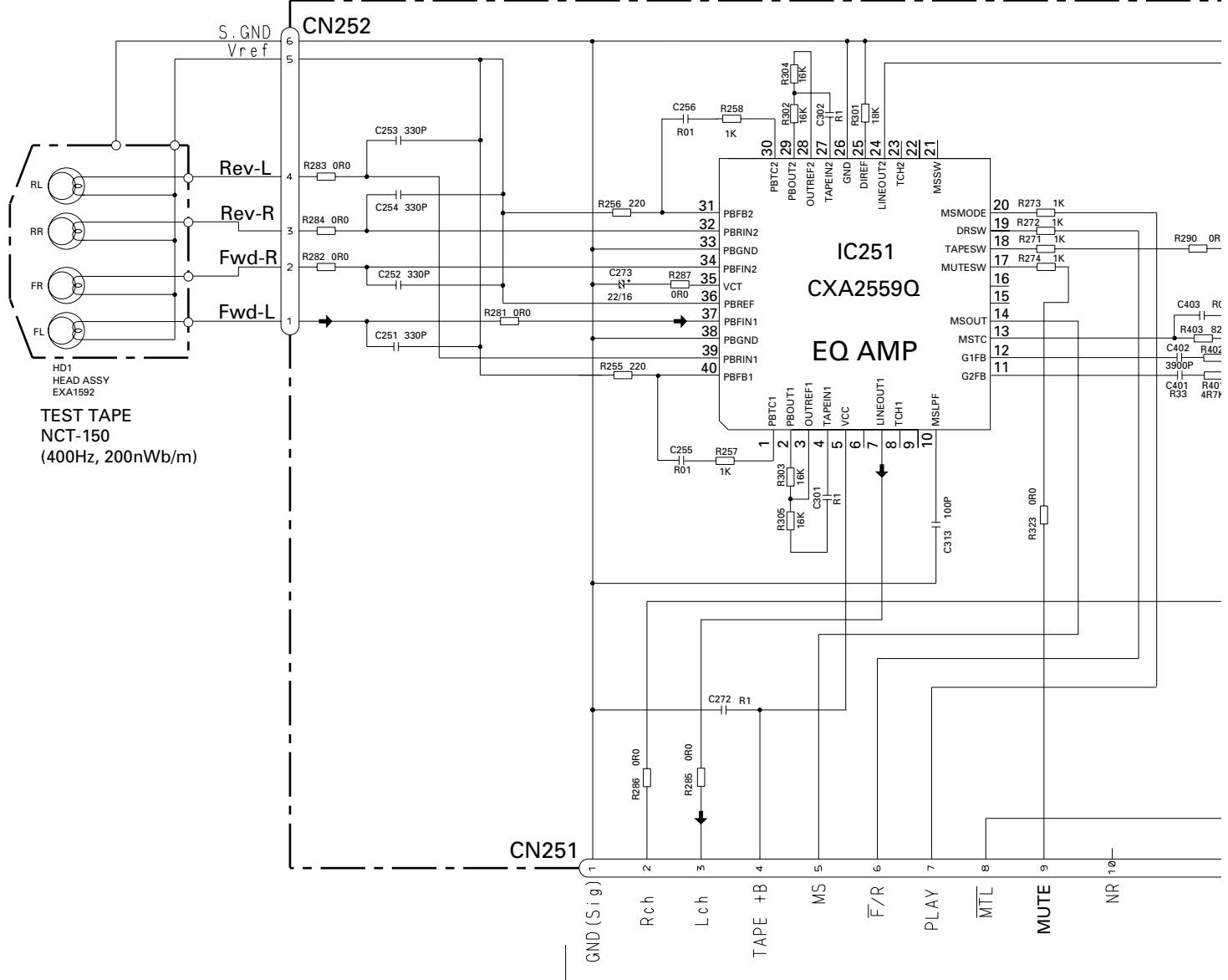
B



C



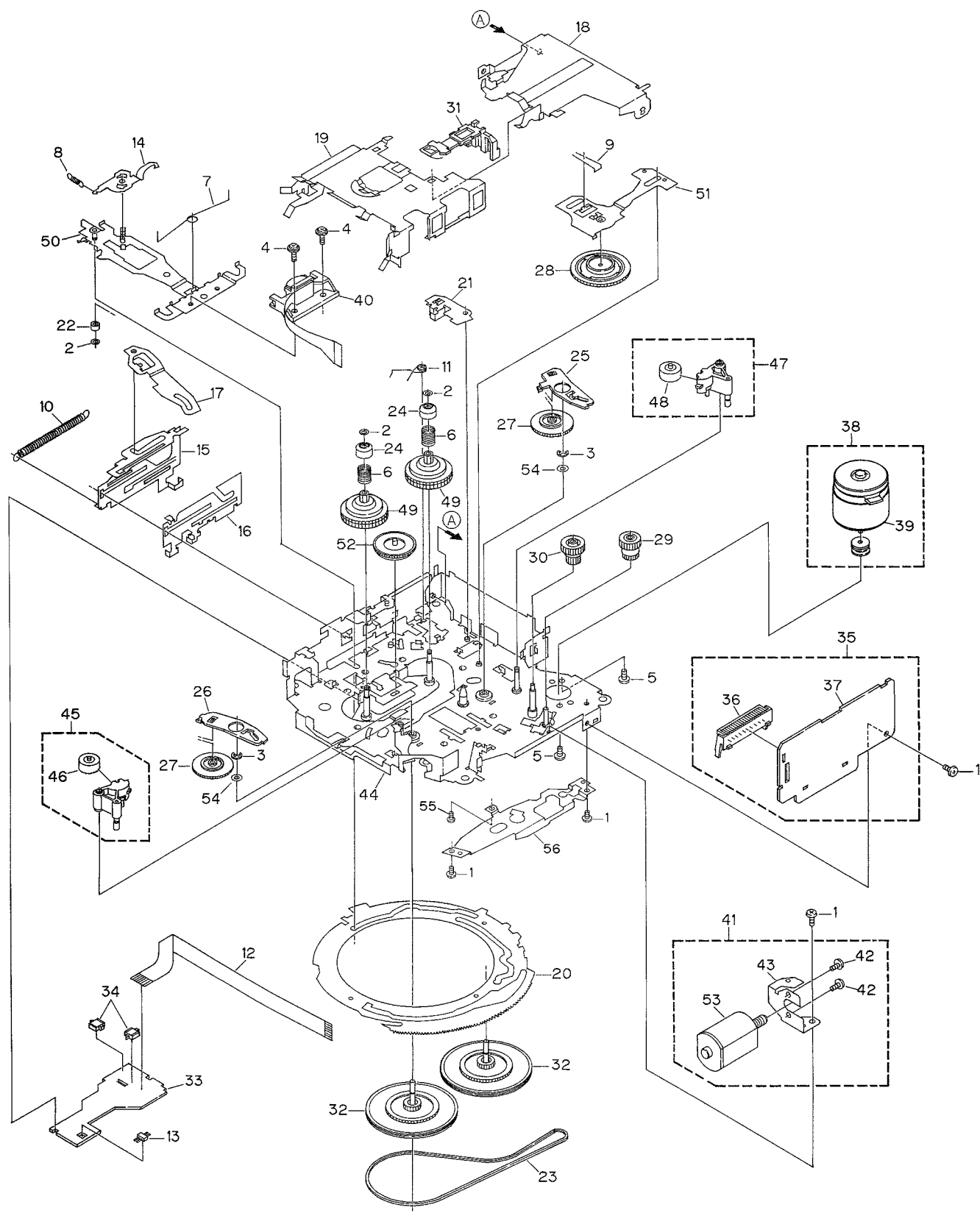
D DECK UNIT



-6dBs(388mV)±1dB

SWITCHES:  
REEL SENSE PCB  
S1:LOAD SWITCH.....EJECT-PLAY  
S2:MODE SWITCH.....ON-OFF  
The underlined indicates the switch position.

CASSETTE MECHANISM MODULE



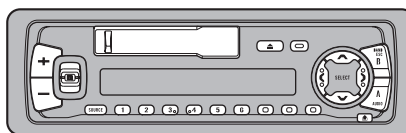
# ● CASSETTE MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC	46	Pinch Roller	ENV1518
2	Washer	CBF1037	47	Pinch Holder Unit	EXA1583
3	Washer	CBG1003	48	Pinch Roller	ENV1518
4	Screw	EBA1028	49	Reel Unit	EXA1585
5	Screw	CBA1037	50	Head Base Unit	EXA1586
6	Spring	EBH1531	51	Lever Unit	EXA1587
7	Spring	EBH1624	52	Gear Unit	EXA1588
8	Spring	EBH1625	53	Motor Unit(Service)	EXX1055
9	Spring	EBH1626	54	Washer	HBF-179
10	Spring	EBH1627	55	Screw	CBA1250
11	Spring	EBH1628	56	Bracket	ENC1542
12	Cord	EDD1024			
13	Photo-reflector(EGN1)	EGN1004			
14	Arm	ENC1526			
15	Lever	ENC1530			
16	Lever	ENC1531			
17	Arm	ENC1532			
18	Frame	ENC1533			
19	Holder	ENC1534			
20	Gear	ENC1535			
21	Arm	ENC1536			
22	Roller	ENR1040			
23	Belt	ENT1027			
24	Collar	ENV1508			
25	Arm	ENV1539			
26	Arm	ENV1540			
27	Gear	ENV1544			
28	Gear	ENV1547			
29	Gear	ENV1548			
30	Worm Wheel	ENV1550			
31	Lever	ENV1551			
32	Flywheel	ENV1554			
33	Gathering PCB	ENX1054			
34	Switch(S1,S2)	ESG1007			
35	Deck Unit	EWM1023			
36	Plug(CN251)	CKS3540			
37	Gathering PCB	ENX1053			
38	Motor Unit(M1)	EXA1491			
39	Motor	EXM1028			
40	Head Assy(HD1)	EXA1592			
41	Motor Unit(M2)	EXA1580			
42	Screw	BMZ20P022FMC			
43	Bracket	ENC1528			
44	Chassis Unit	EXA1582			
45	Pinch Holder Unit	EXA1584			

# Service Manual

**Pioneer**

KEH-P490/X1M/UC



ORDER NO.  
**CRT2398**

MULTI-CD CONTROL HIGH POWER CASSETTE PLAYER WITH FM/AM TUNER

# KEH-P490

**X1M/UC**

# KEH-P4900

**X1M/UC**

# KEH-P4950

**X1M/ES**

● This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech. Module	Remarks
CX-1011	CRT2406	3L	Cassette Mech. Module: Mech. Description and Greasing, Disassembly, Adjustment

● This service manual does not describe the CD test mode.

For the operations in the CD test mode, refer to the CD player's Service manual.

## CONTENTS

1. SAFETY INFORMATION .....	2	7. GENERAL INFORMATION .....	42
2. EXPLODED VIEWS AND PARTS LIST .....	2	7.1 DISASSEMBLY .....	42
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM .....	9	7.2 PARTS .....	43
4. PCB CONNECTION DIAGRAM .....	24	7.2.1 IC .....	43
5. ELECTRICAL PARTS LIST .....	33	7.2.2 DISPLAY .....	47
6. ADJUSTMENT .....	40	8. OPERATIONS AND SPECIFICATIONS .....	48

**PIONEER CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan  
**PIONEER ELECTRONICS SERVICE INC.** P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.  
**PIONEER ELECTRONIC [EUROPE] N.V.** Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium  
**PIONEER ELECTRONICS ASIACENTRE PTE.LTD.** 253 Alexandra Road, #04-01, Singapore 159936



## 1. SAFETY INFORMATION

### **CAUTION**

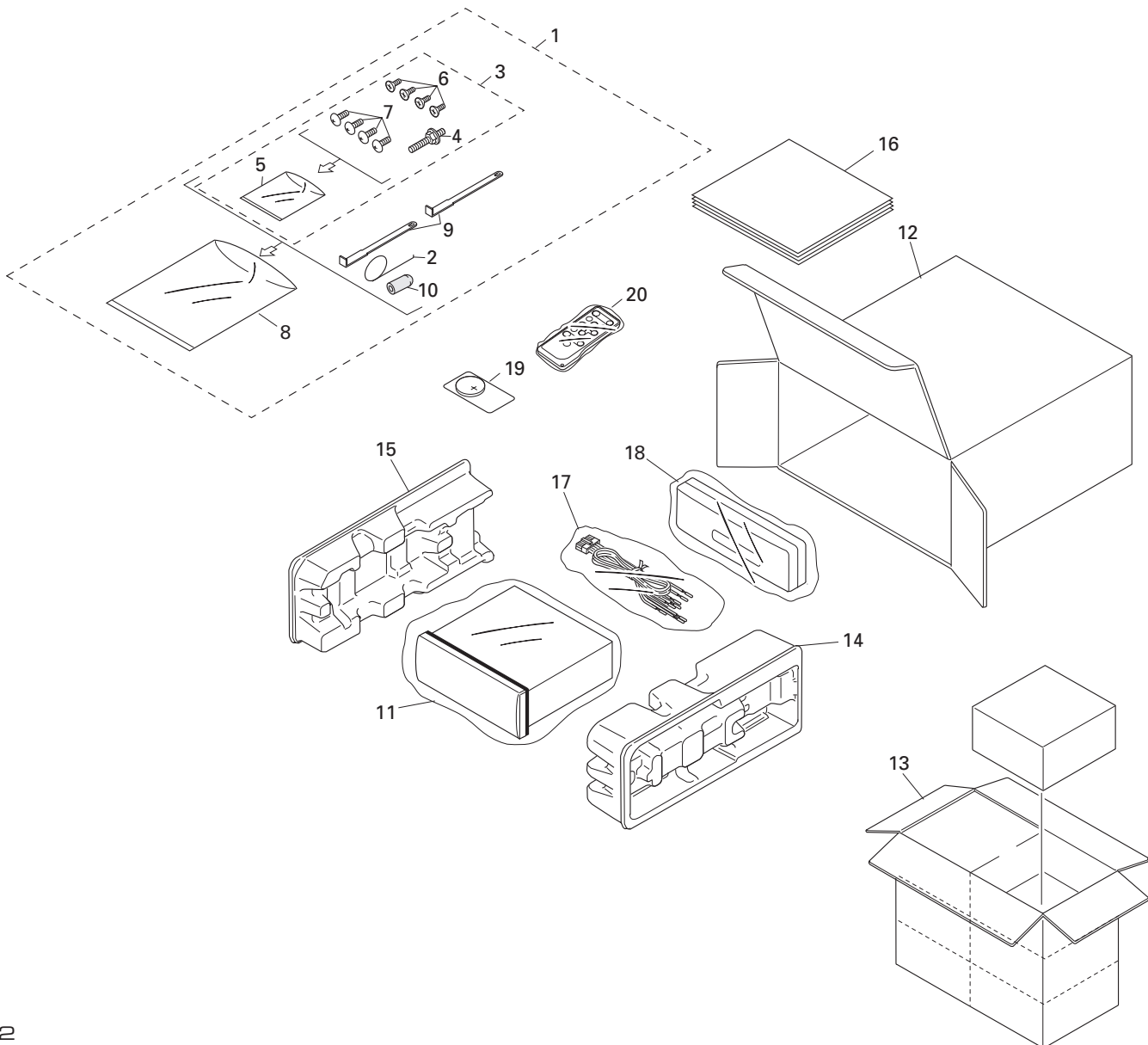
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

### **WARNING**

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.  
Health & Safety Code Section 25249.6 - Proposition 65

## 2. EXPLODED VIEWS AND PARTS LIST

### 2.1 PACKING



**NOTE:**

- Parts marked by “\*” are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

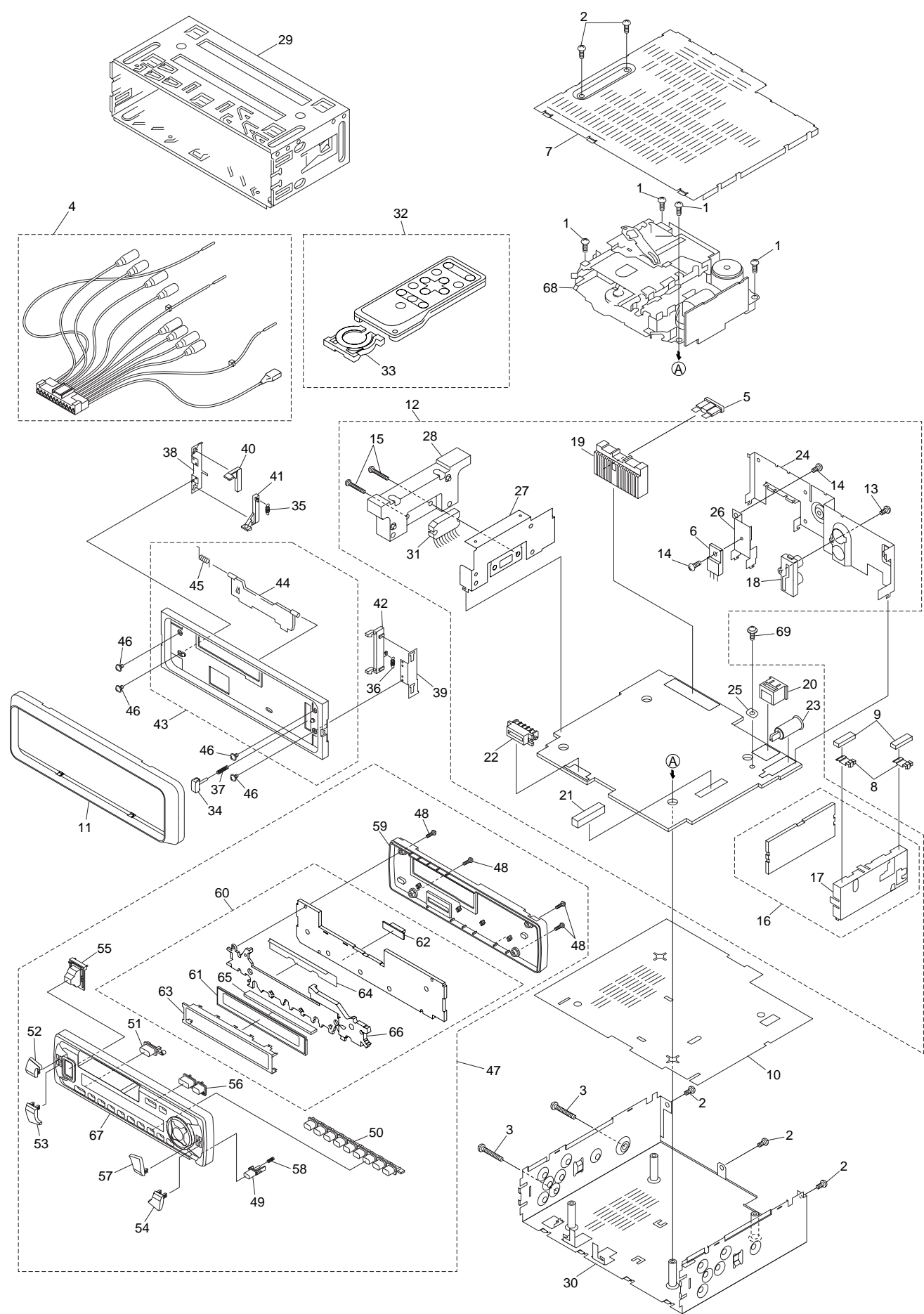
**● PACKING SECTION PARTS LIST**

Mark	No.	Description	Part No.		
			KEH-P490/X1M/UC	KEH-P4900/X1M/UC	KEH-P4950/X1M/ES
*	1	Accessory Assy	CEA2350	CEA2350	CEA2350
	2	Spring	CBH1650	CBH1650	CBH1650
	3	Screw Assy	CEA2351	CEA2351	CEA2351
	4	Screw	CBA1304	CBA1304	CBA1304
*	5	Polyethylene Bag	CEG-127	CEG-127	CEG-127
*	6	Screw	CRZ50P090FMC	CRZ50P090FMC	CRZ50P090FMC
	7	Screw	TRZ50P080FMC	TRZ50P080FMC	TRZ50P080FMC
	8	Polyethylene Bag	CEG-158	CEG-158	CEG-158
	9	Handle	CNC5395	CNC5395	CNC5395
	10	Bush	CNV3930	CNV3930	CNV3930
	11	Polyethylene Bag	CEG1173	CEG1173	CEG-162
	12	Carton	CHG3893	CHG3889	CHG3890
	13	Contain Box	CHL3893	CHL3889	CHL3890
	14	Protector	CHP2244	CHP2244	CHP2244
	15	Protector	CHP2243	CHP2243	CHP2243
	16-1	Owner's Manual	CRD3090	CRD3088	CRD3083
	16-2	Owner's Manual	Not used	Not used	CRD3084
	16-3	Installation Manual	CRD3091	CRD3089	CRD3085
	16-4	Warranty Card	CRY1070	CRY1070	Not used
*	16-5	Card	Not used	ARY1048	Not used
	17	Cord assy	CDE6222	CDE6222	CDE6222
	18	Case assy	CXB3520	CXB3520	CXB3520
	19	Battery	CEX1030	Not used	Not used
	20	Remote Control Unit	CXB4284	Not used	Not used

**● Owner's Manual, Installation Manual**

Model	Part No.	Language
KEH-P490/X1M/UC	CRD3090	English, French
	CRD3091	English, French
KEH-P4900/X1M/UC	CRD3088	English, French, Spanish
	CRD3089	English, French, Spanish
KEH-P4950/X1M/ES	CRD3083	English, Spanish, Portuguese(B)
	CRD3084	Chinese, Arabic
	CRD3085	English, Spanish, Portuguese(B), Chinese, Arabic

2.2 EXTERIOR



**(1) EXTERIOR SECTION PARTS LIST**

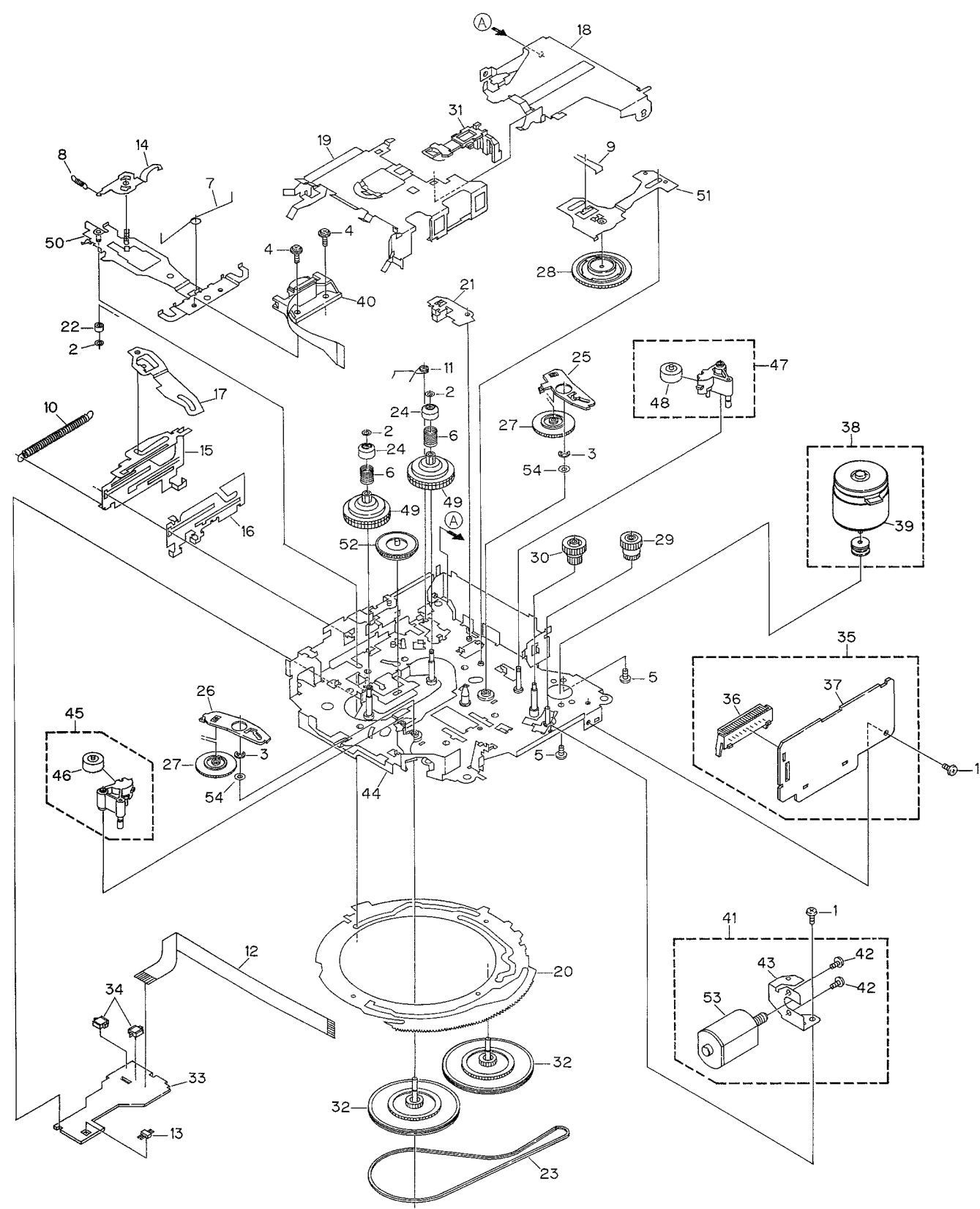
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ26P050FMC	36	Spring	CBH1835
2	Screw	BSZ30P050FMC	37	Spring	CBH2182
3	Screw	BSZ30P200FMC	38	Bracket	CNC6135
4	Cord Assy	CDE6222	39	Bracket	CNC6791
5	Fuse(10A)	CEK1136	40	Arm	CNV4692
6	Transistor(Q904)	2SD2396	41	Arm	CNV4693
7	Case	CNB2350	42	Arm	CNV4728
8	Holder	CNC5704	43	Panel Unit	CXB4927
9	Cushion	CNM5210	44	Door	CAT2109
10	Insulator	CNM5963	45	Spring	CBH1838
11	Panel	CNS5132	46	Screw	IMS20P030FZK
12	Tuner Amp Unit	See Contrast table(2)	47	Detach Grille Assy	See Contrast table(2)
13	Screw	BPZ26P080FMC	48	Screw	BPZ20P100FZK
14	Screw	BSZ26P080FMC	49	Button(DETACH)	CAC5789
15	Screw	BSZ26P160FMC	50	Button(1-6)	CAC6239
16	FM/AM Tuner Unit	See Contrast table(2)	51	Button(SOURCE)	CAC6241
17	Holder	CNC6554	52	Button(+)	CAC6242
18	Pin Jack(CN301)	CKB1035	53	Button(-)	CAC6243
19	Plug(CN603)	CKM1270	54	Button(AUDIO)	CAC6245
20	Connector(CN701)	CKS3408	55	Button(EQ)	CAC6247
21	Connector(CN602)	CKS3568	56	Button(EJECT)	CAC6268
22	Connector(CN601)	CKS3581	57	Button(BAND)	CAC6269
23	Antenna Jack(CN402)	CKX1056	58	Spring	CBH2103
24	Panel	CNB2343	59	Cover	CNS5635
25	Holder	CNC5399	60	Keyboard Unit	See Contrast table(2)
26	Holder	CNC6845	61	LCD(LCD1901)	CAW1563
27	Holder	CNC7996	62	Connector(CN1901)	CKS3580
28	Heat Sink	CNR1505	63	Holder	CNC8485
29	Holder Unit	CXB2687	64	Sheet	CNM6453
30	Chassis Unit	CXB3012	65	Connector	CNV5914
31	IC(IC302)	TDA7384	66	Lighting Conductor	CNV5915
32	Remote Control Unit	See Contrast table(2)	67	Grille Sub Assy	See Contrast table(2)
33	Cover	See Contrast table(2)	68	Cassette Mechanism Module	EKK4000
34	Button	CAC4836	69	Screw	ISS26P055FUC
35	Spring	CBH1834			

**(2) CONTRAST TABLE**

KEH-P490/X1M/UC, KEH-P4900/X1M/UC and KEH-P4950/X1M/ES are constructed same except for the following:

Mark No.	Description	Part No.		
		KEH-P490/X1M/UC	KEH-P4900/X1M/UC	KEH-P4950/X1M/ES
12	Tuner Amp Unit	CWM7021	CWM7021	CWM7025
16	FM/AM Tuner Unit	CWE1467	CWE1467	CWE1486
32	Remote Control Unit	CXB4284	Not used	Not used
33	Cover	CNS4948	Not used	Not used
47	Detach Grille Assy	CXB5152	CXB4788	CXB4789
60	Keyboard Unit	CWM7022	CWM7024	CWM7024
67	Grille Sub Assy	CXB5209	CXB5210	CXB5211

2.3 CASSETTE MECHANISM MODULE



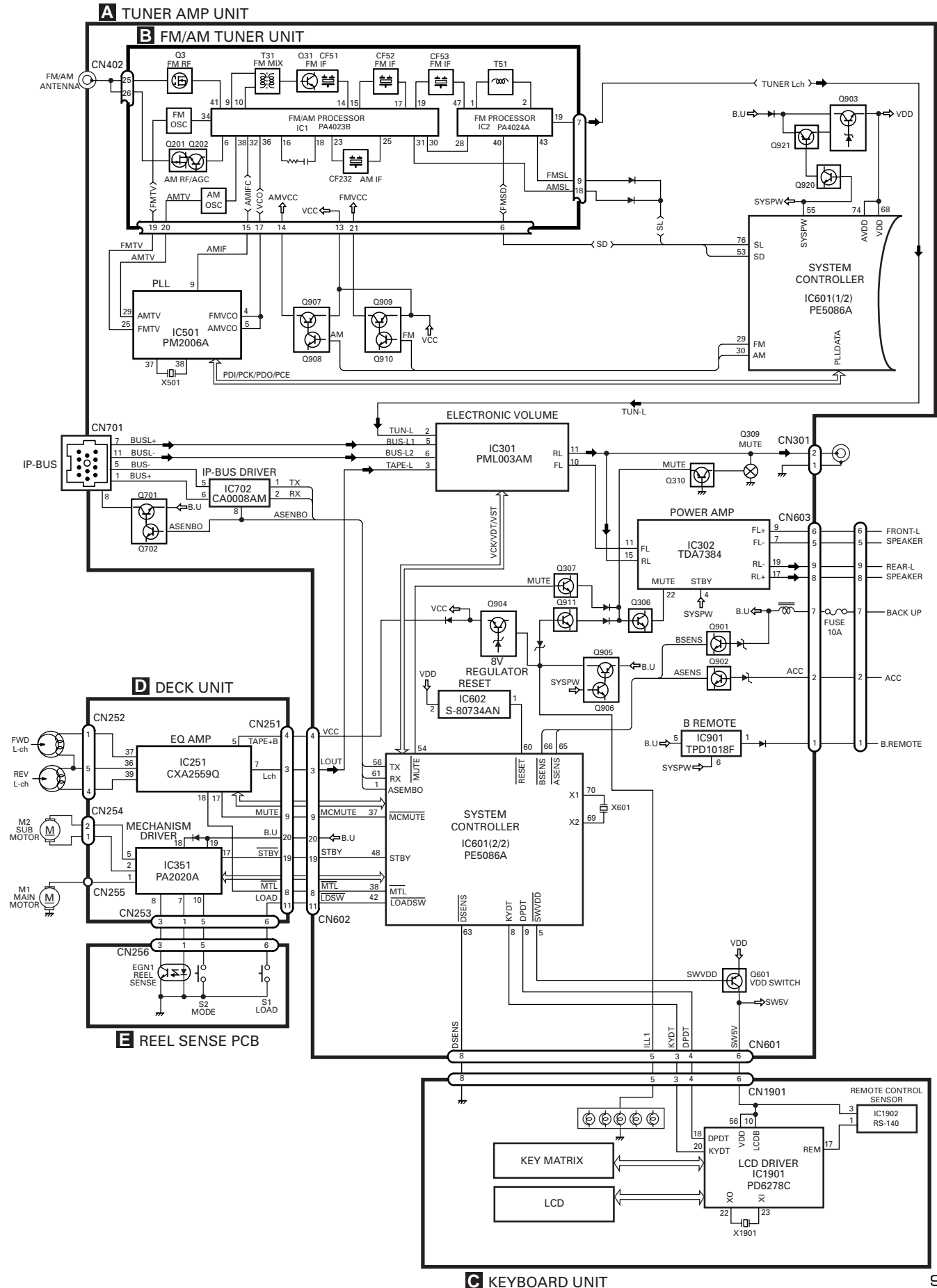
# ● CASSETTE MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC	46	Pinch Roller	ENV1518
2	Washer	CBF1037	47	Pinch Holder Unit	EXA1583
3	Washer	CBG1003	48	Pinch Roller	ENV1518
4	Screw	EBA1028	49	Reel Unit	EXA1585
5	Screw	EBA1037	50	Head Base Unit	EXA1586
6	Spring	EBH1531	51	Lever Unit	EXA1587
7	Spring	EBH1624	52	Gear Unit	EXA1588
8	Spring	EBH1625	53	Motor Unit(Service)	EXX1055
9	Spring	EBH1626	54	Washer	HBF-179
10	Spring	EBH1627			
11	Spring	EBH1628			
12	Cord	EDD1024			
13	Photo-reflector(EGN1)	EGN1004			
14	Arm	ENC1526			
15	Lever	ENC1530			
16	Lever	ENC1531			
17	Arm	ENC1532			
18	Frame	ENC1533			
19	Holder	ENC1534			
20	Gear	ENC1535			
21	Arm	ENC1536			
22	Roller	ENR1040			
23	Belt	ENT1027			
24	Collar	ENV1508			
25	Arm	ENV1539			
26	Arm	ENV1540			
27	Gear	ENV1544			
28	Gear	ENV1547			
29	Gear	ENV1548			
30	Worm Wheel	ENV1550			
31	Lever	ENV1551			
32	Flywheel	ENV1554			
33	Gathering PCB	ENX1054			
34	Switch(S1,S2)	ESG1007			
35	Deck Unit	EWM1023			
36	Plug(CN251)	CKS3540			
37	Gathering PCB	ENX1053			
38	Motor Unit(M1)	EXA1491			
39	Motor	EXM1028			
40	Head Assy(HD1)	EXA1506			
41	Motor Unit(M2)	EXA1580			
42	Screw	BMZ20P022FMC			
43	Bracket	ENC1528			
44	Chassis Unit	EXA1582			
45	Pinch Holder Unit	EXA1584			



### 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

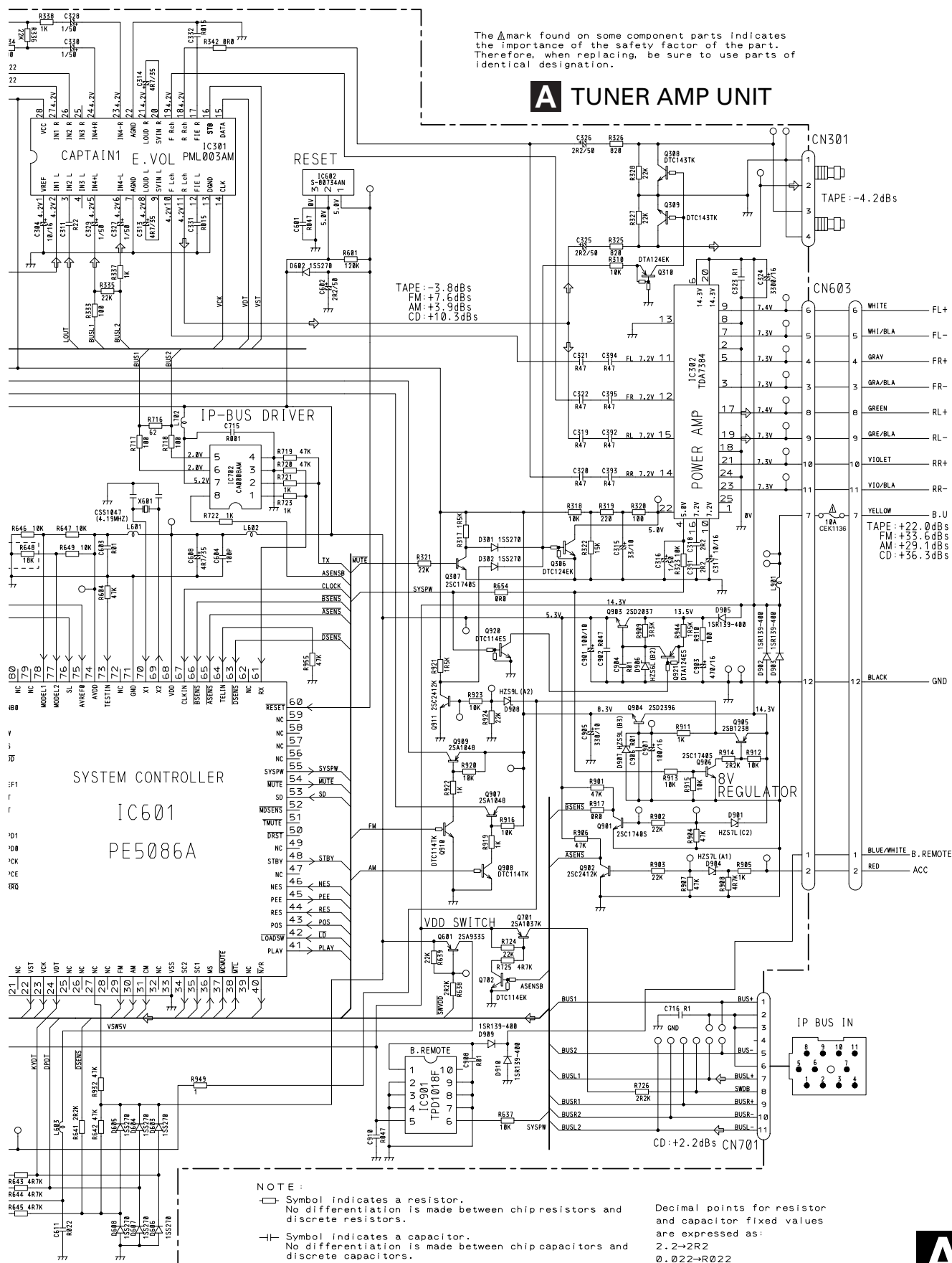
#### 3.1 BLOCK DIAGRAM







The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.



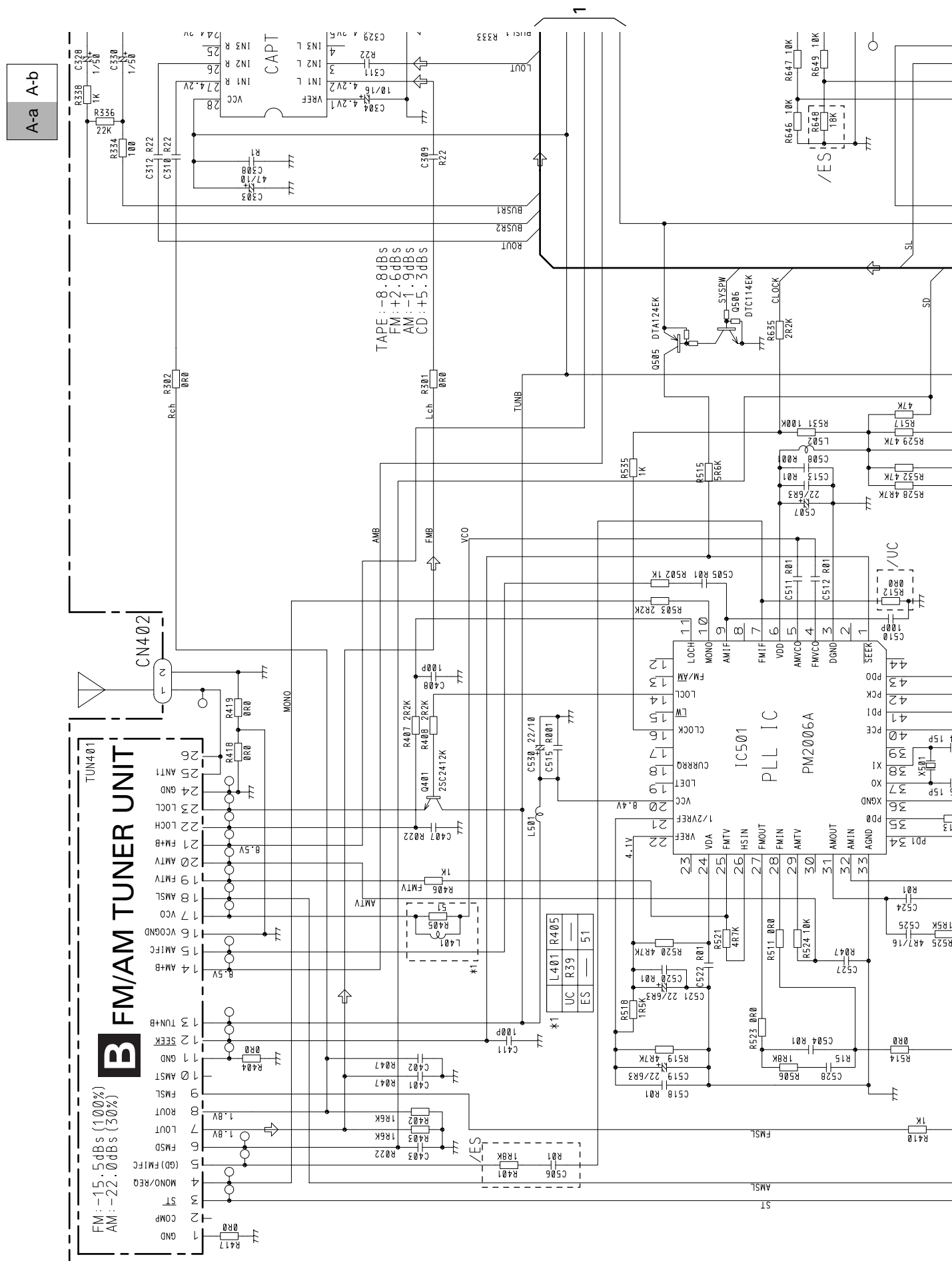
NOTE :

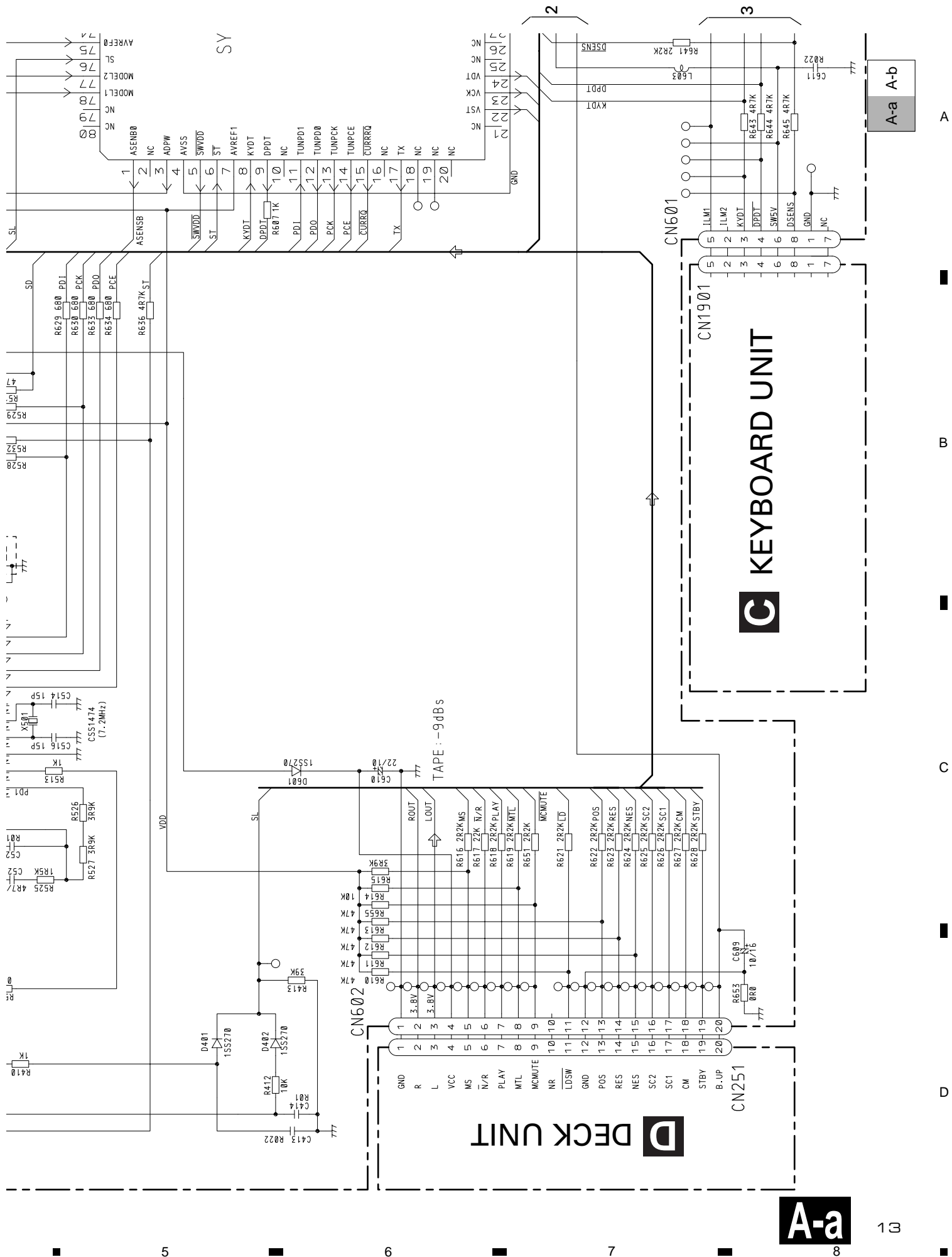
- Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.
- ⊢ Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:

2.2→2R2

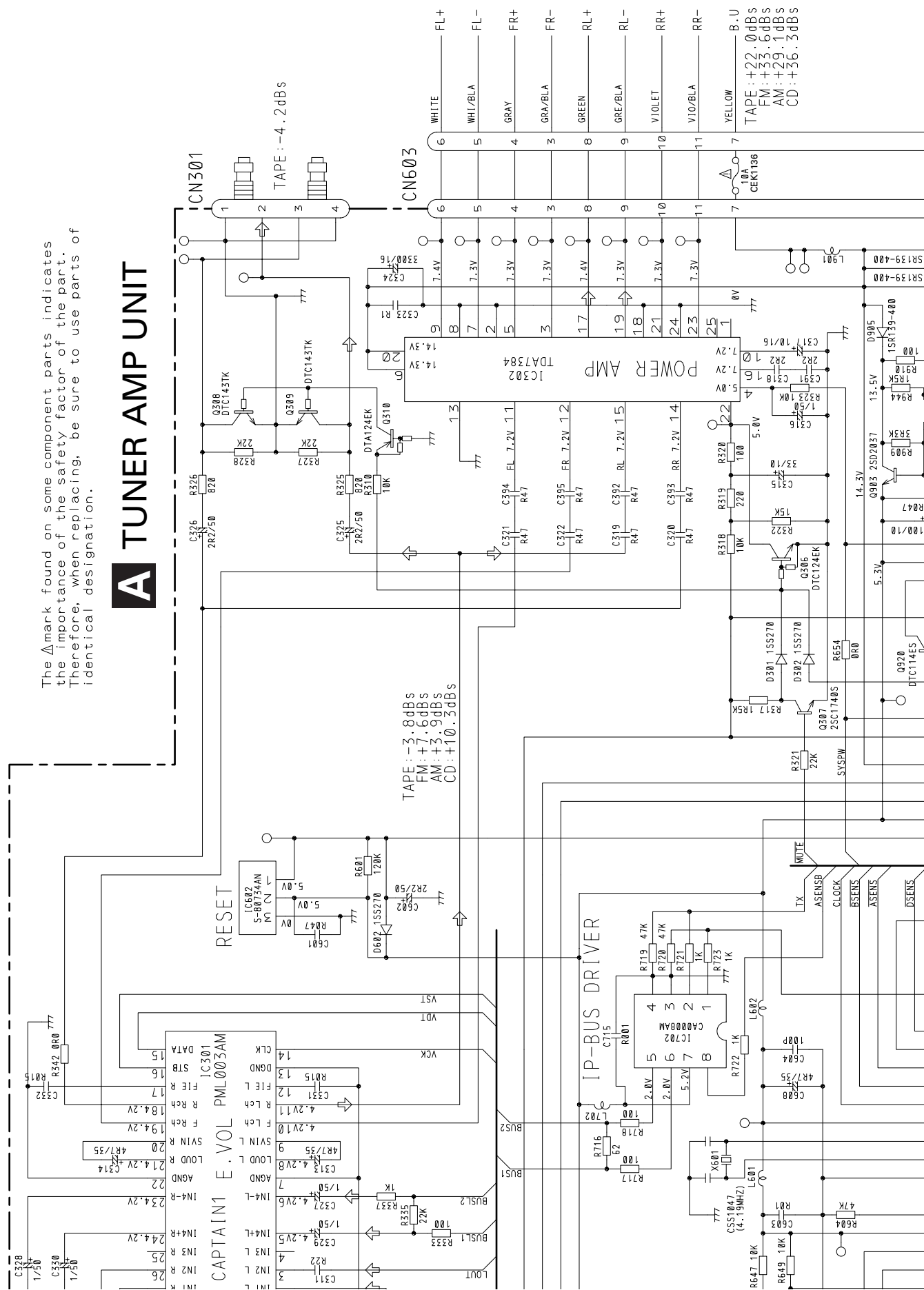
0.022→R022

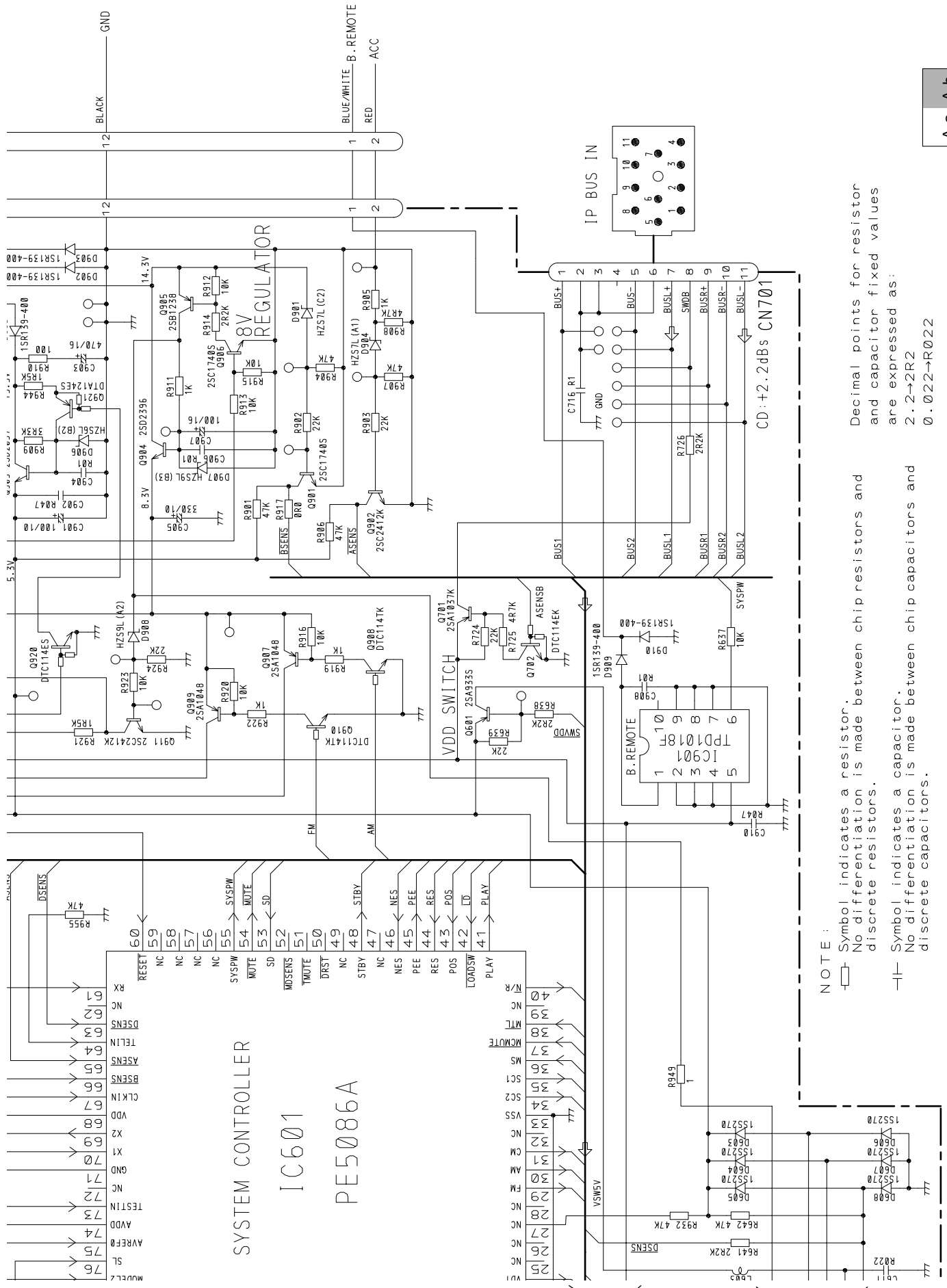




The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

# A TUNER AMP UNIT





NOTES

—□— Symbol indicates a resistor.  
No differentiation is made between discrete resistors.

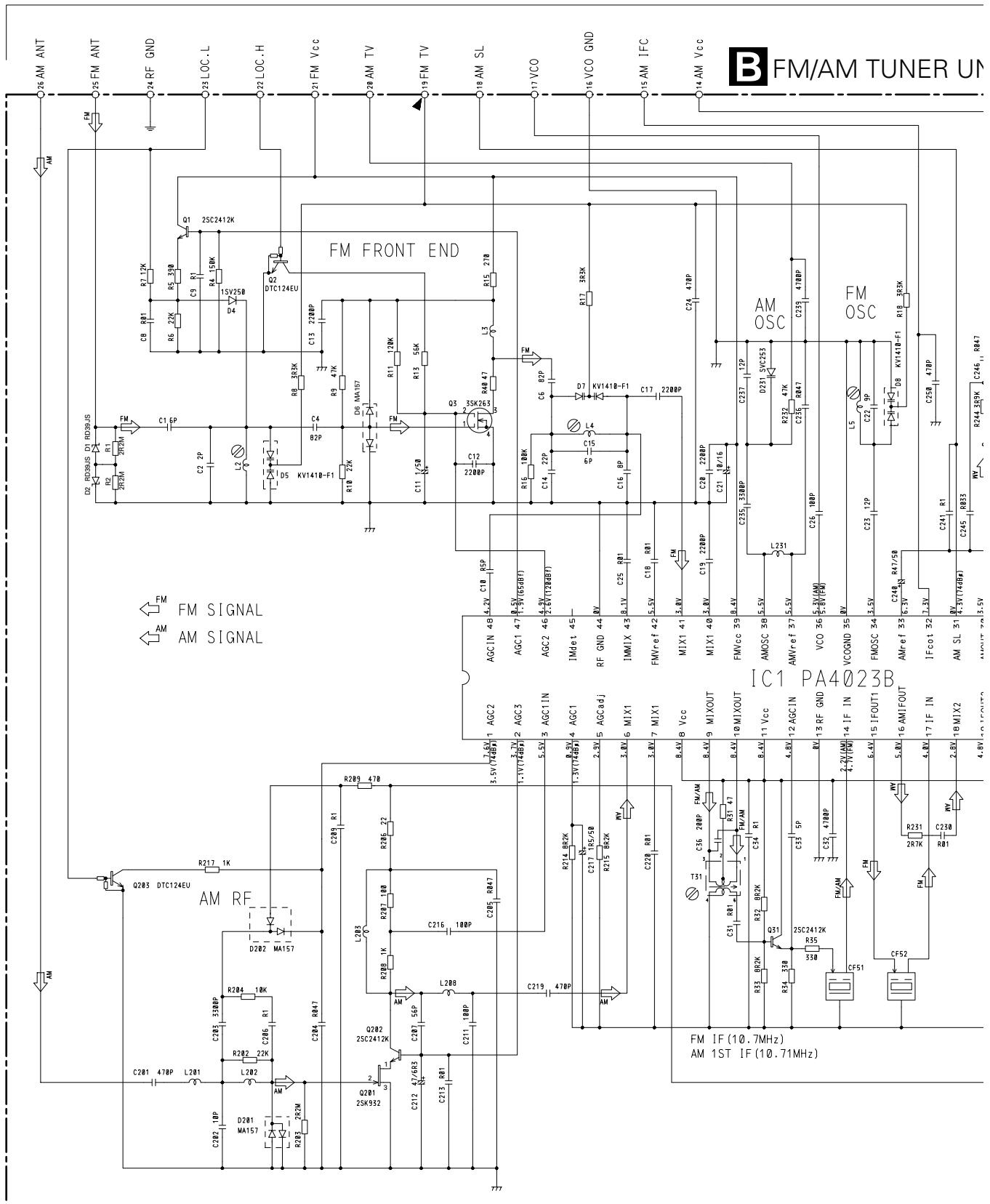
—||— Symbol indicates a capacitor.  
No differentiation is made be-  
tween discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:

2.2→2R2  
0.022→R022

### 3.3 FM/AM TUNER UNIT

● CWE1467(KEH-P490/X1M/UC, KEH-P4900/X1M/UC)



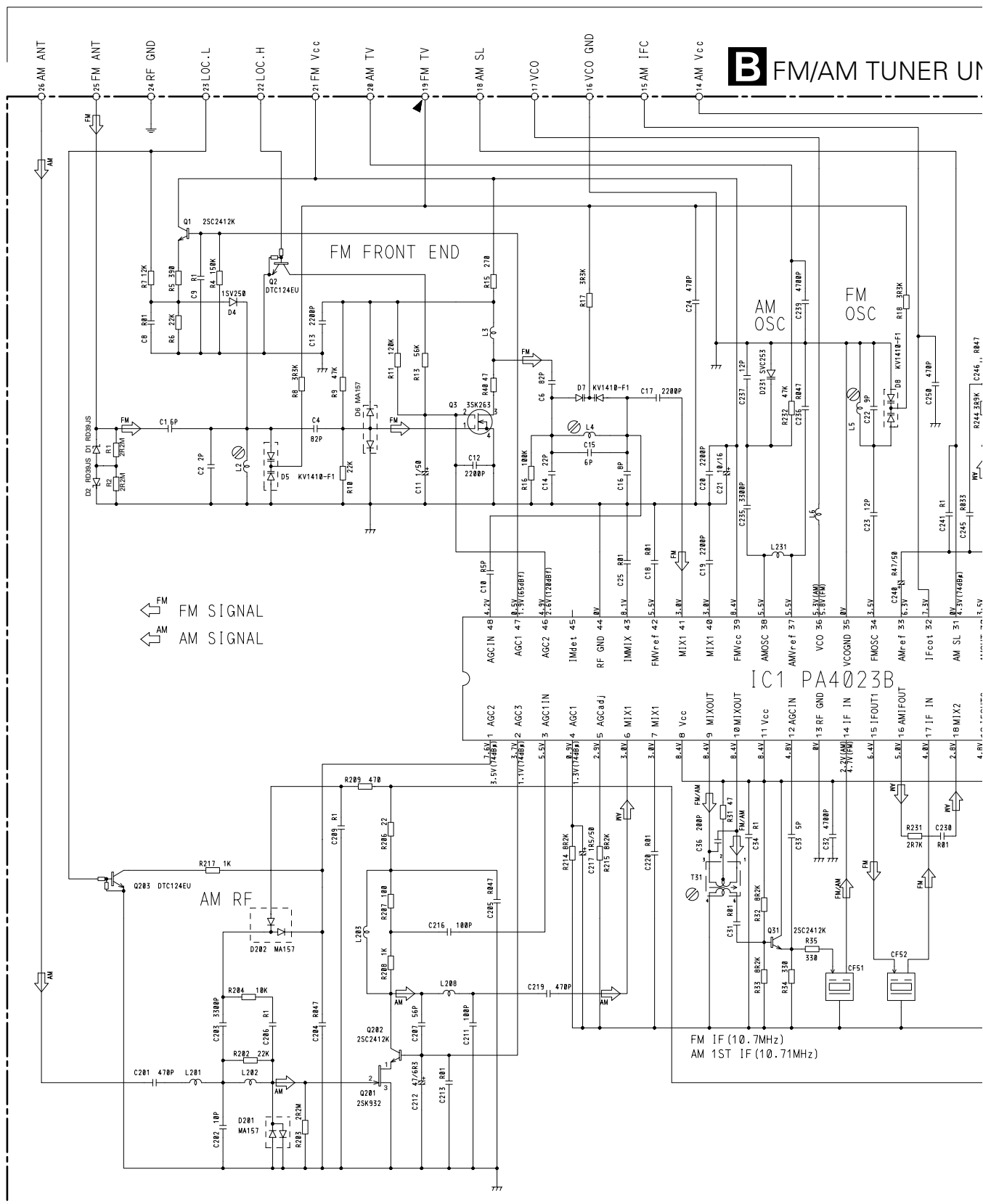


C

D

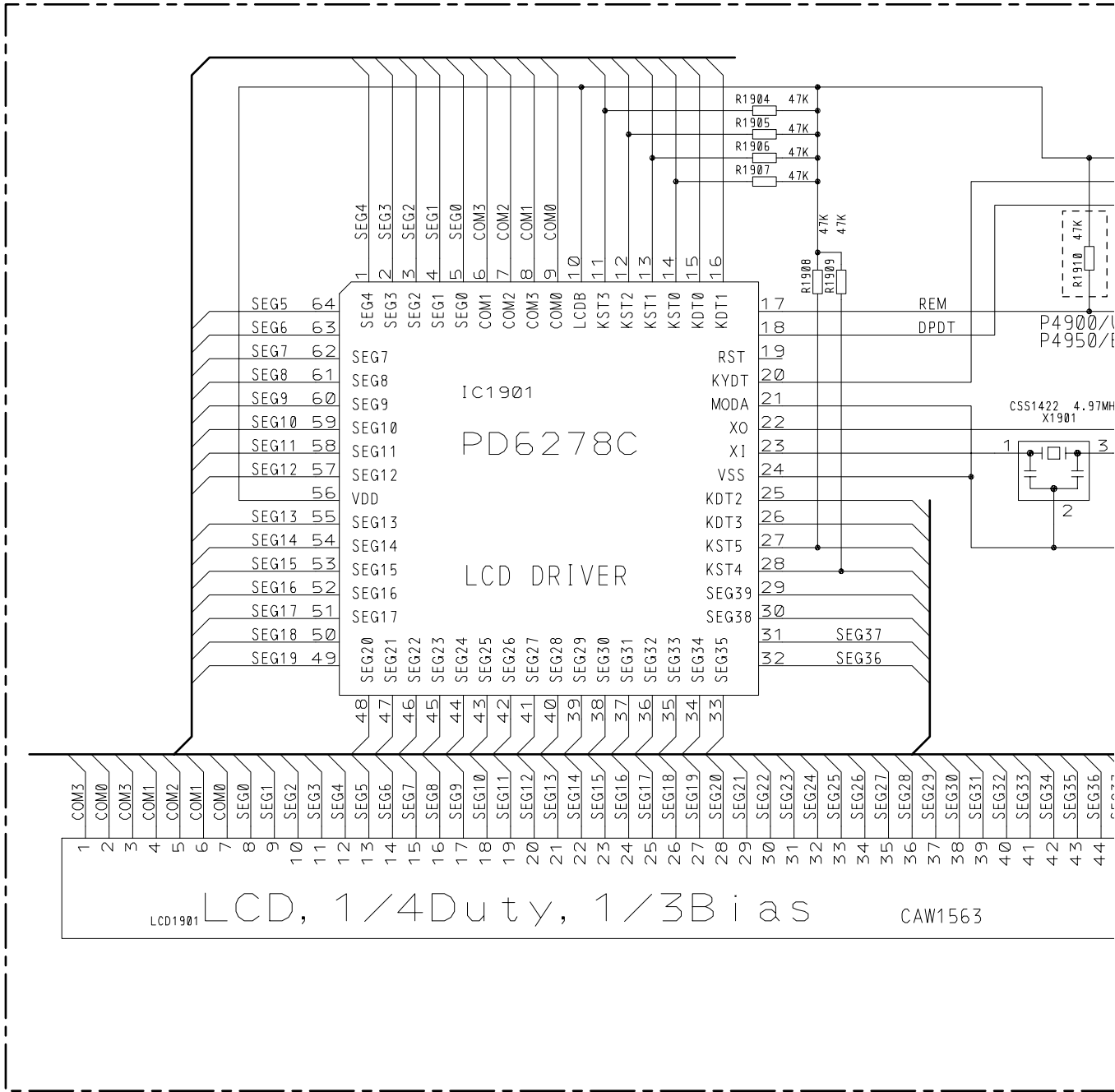


● CWE1486(KEH-P4950/X1M/ES)





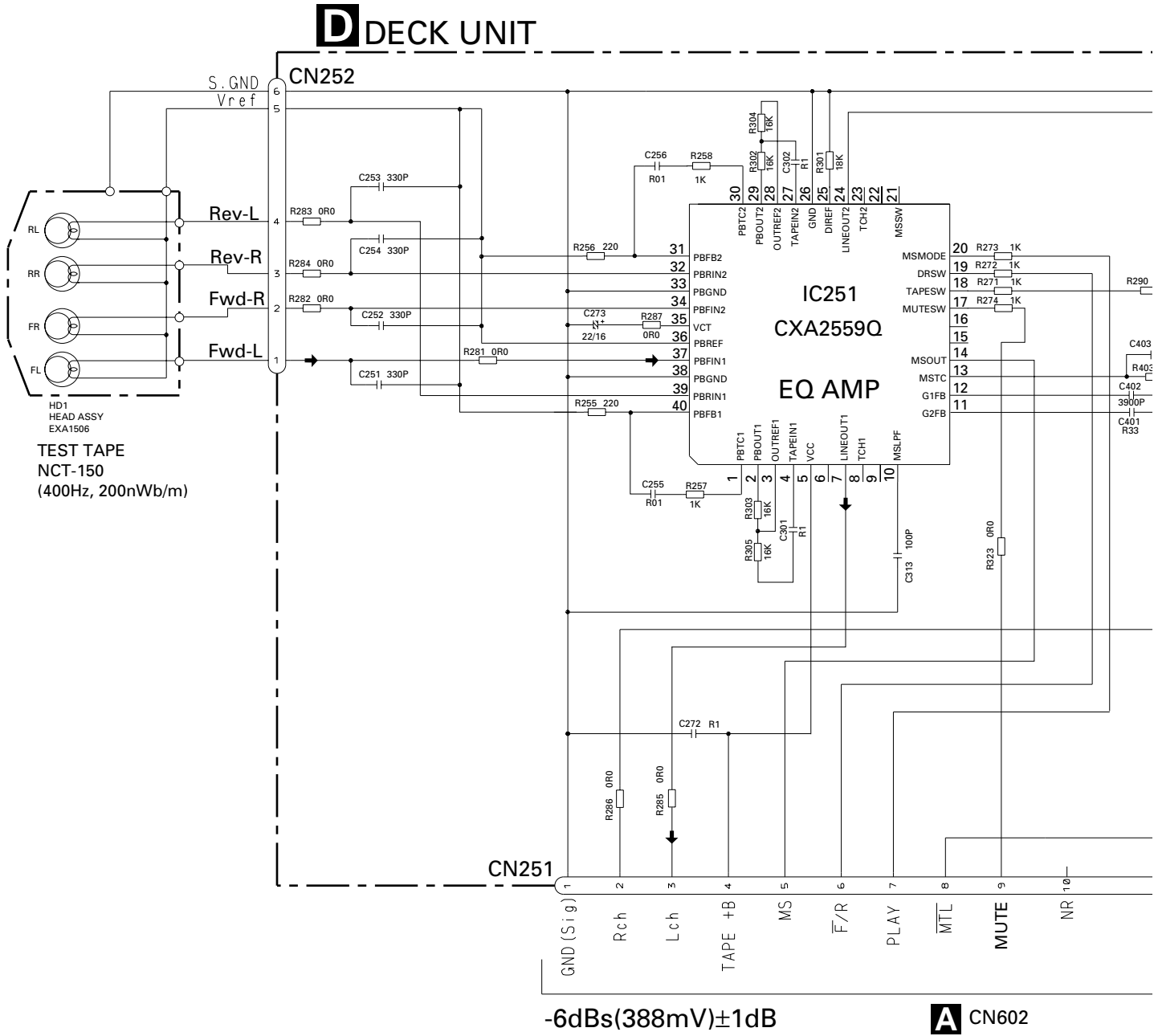
3.4 KEYBOARD UNIT

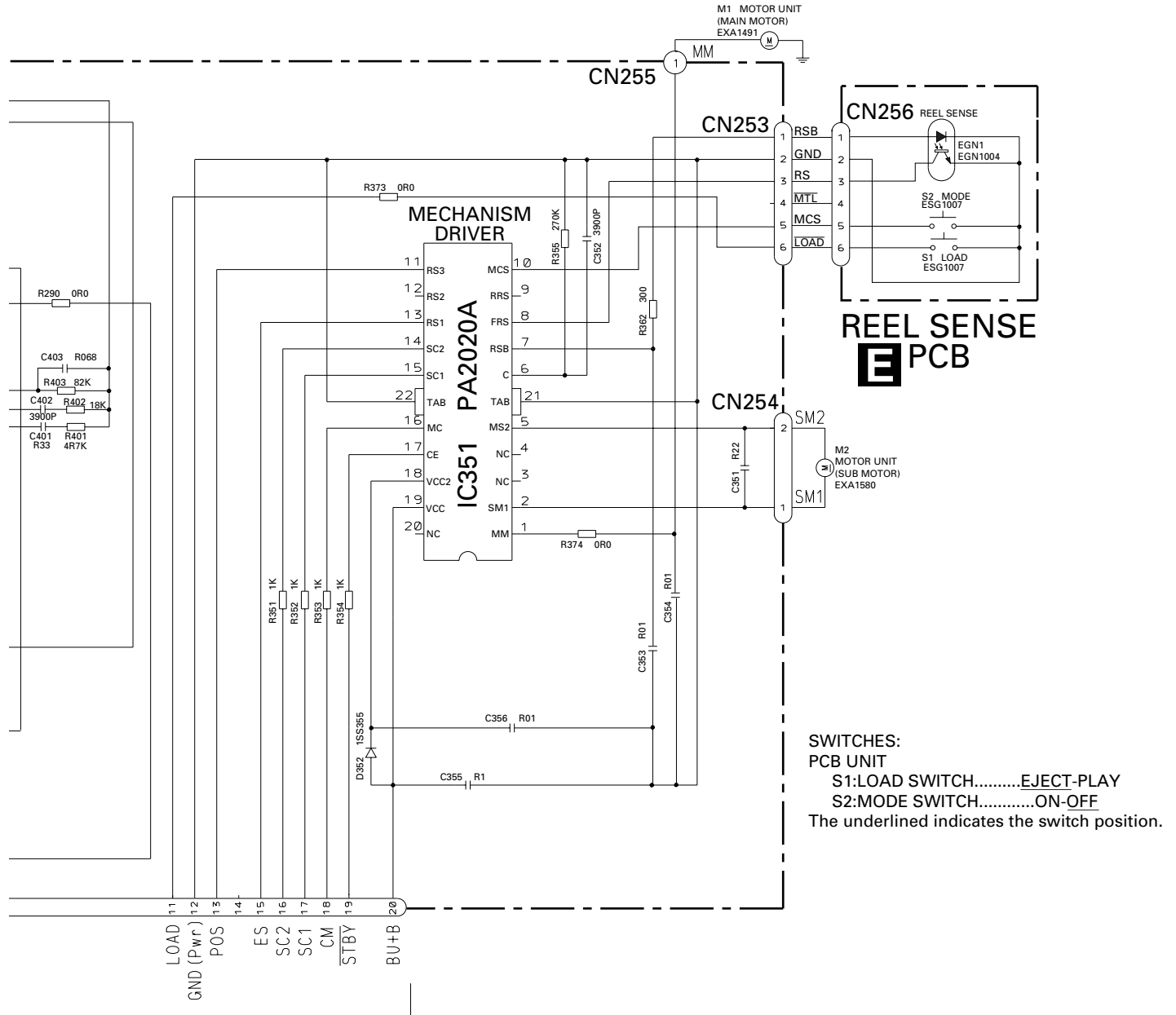


## B



3.5 CASSETTE MECHANISM MODULE



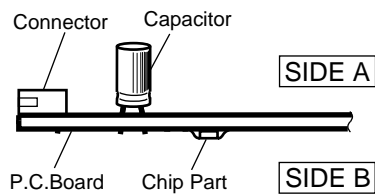


## 4. PCB CONNECTION DIAGRAM

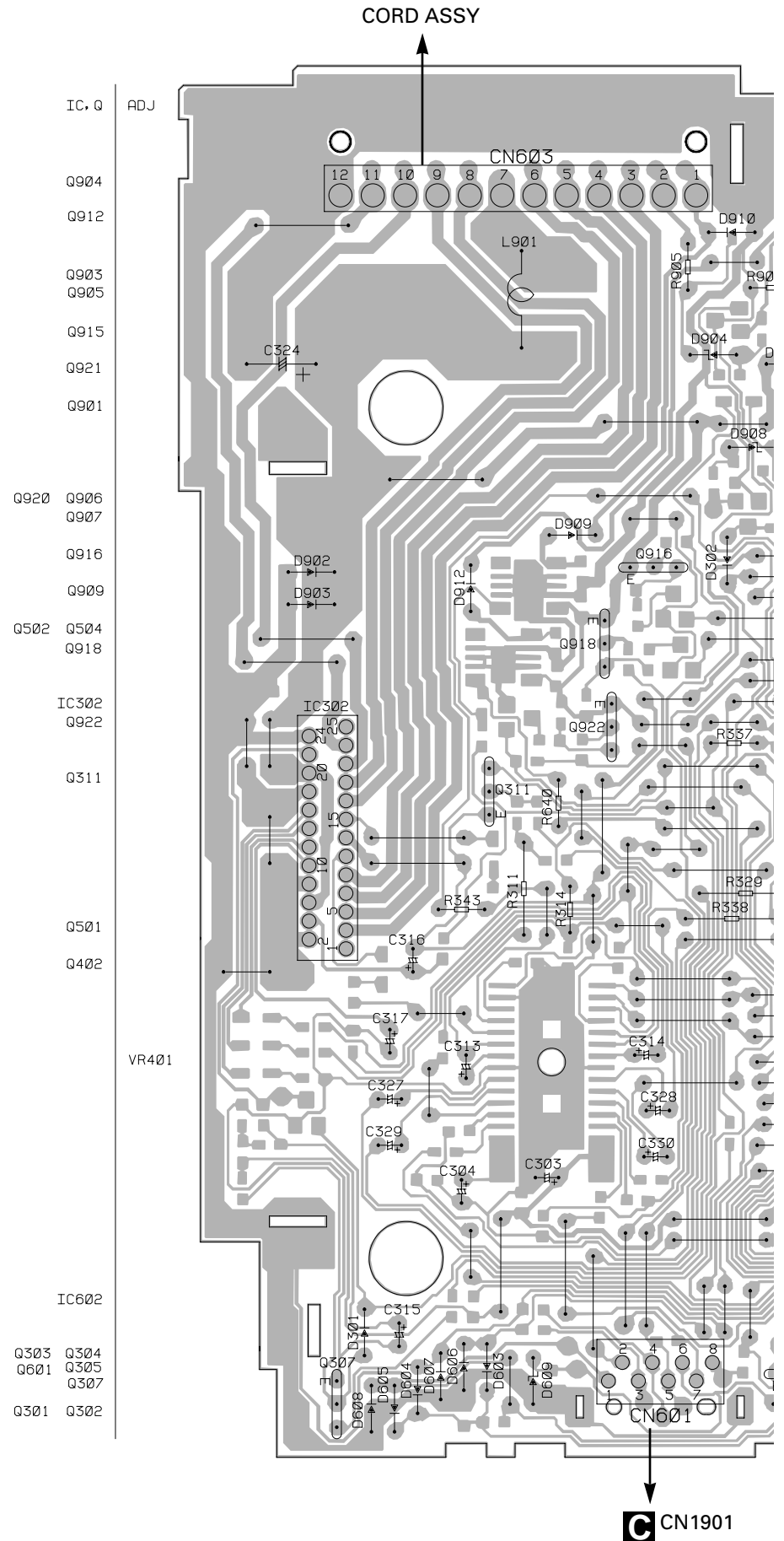
### 4.1 TUNER AMP UNIT

#### NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.  
For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



#### A TUNER AMP UNIT



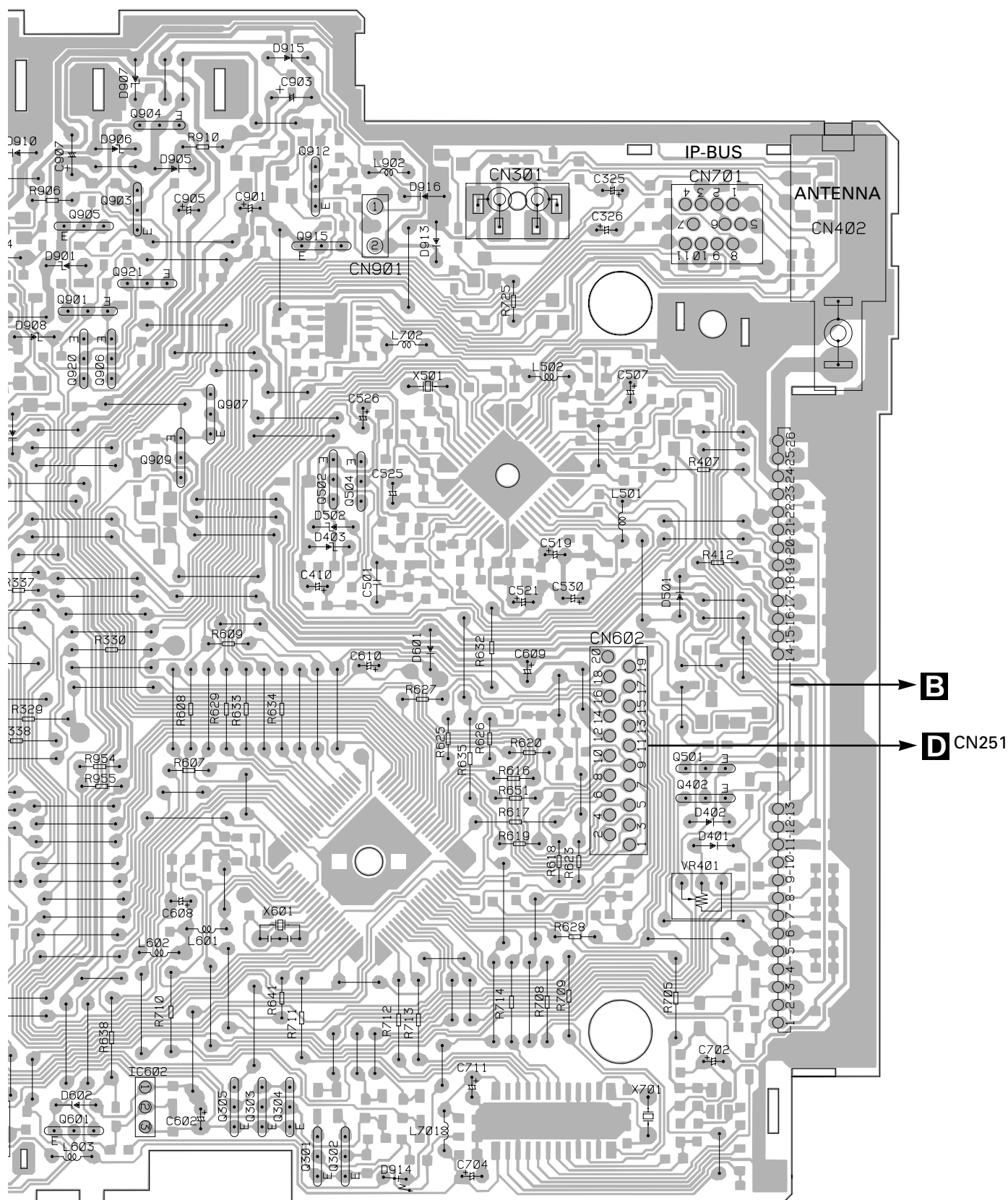
## SIDE A

A

B

C

D

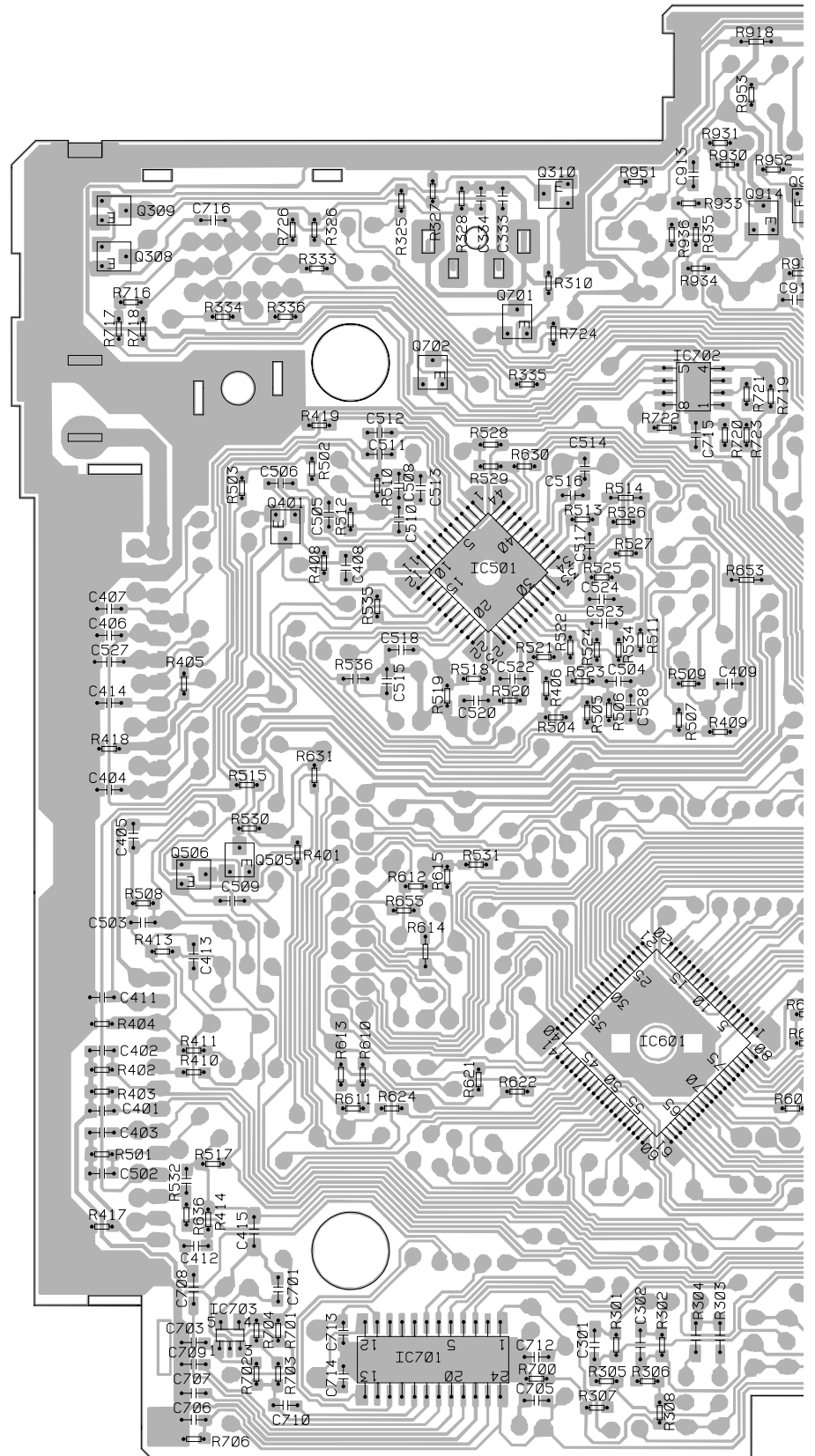
**B**

**D** CN251

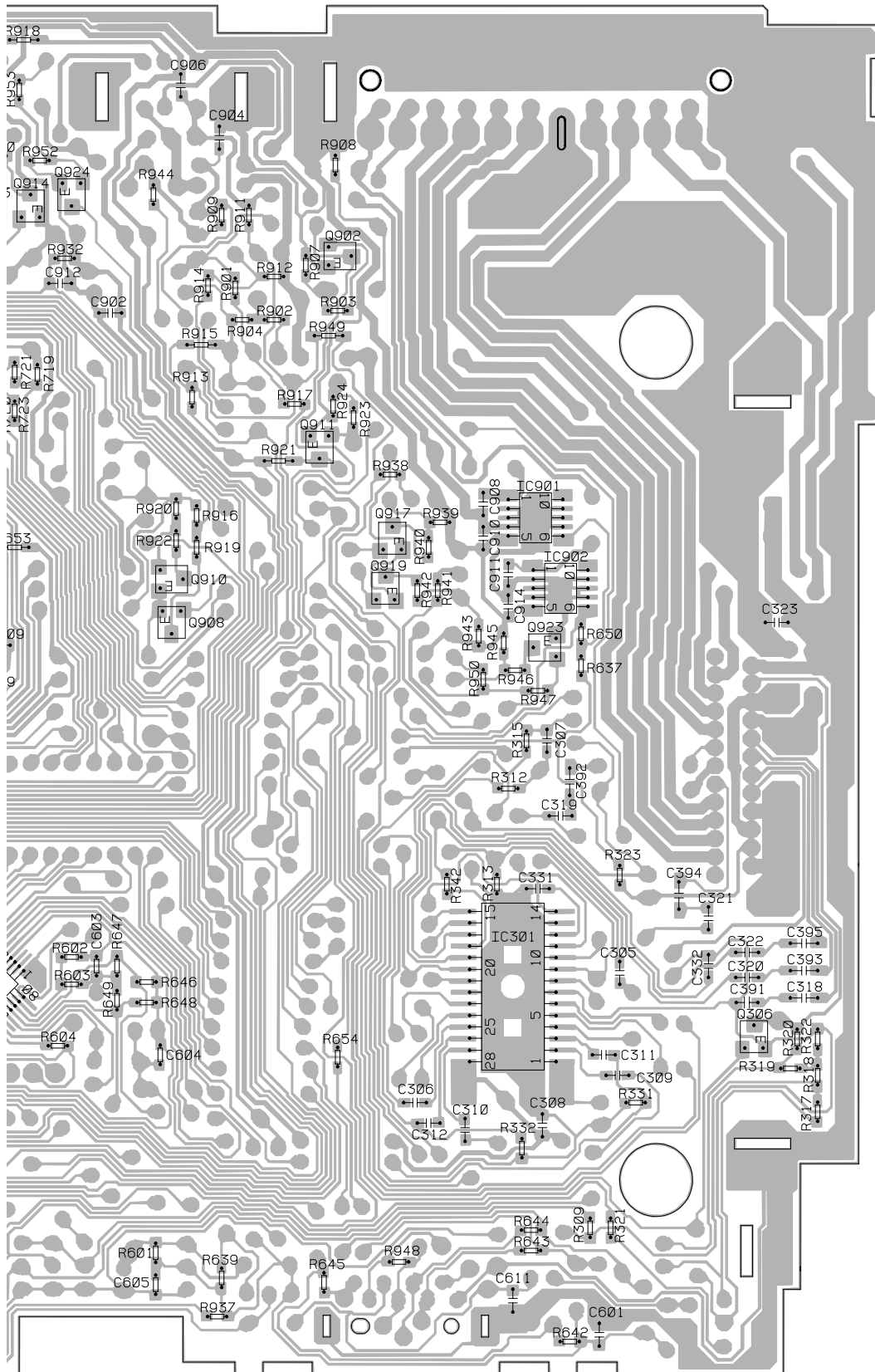
A



A TUNER AMP UNIT



SIDE B



IC, Q

Q310  
Q914 Q924  
Q309Q308  
Q902  
Q701Q702  
IC702

Q911

Q401  
IC901  
Q917  
IC501Q919 IC902  
Q910

Q908 Q923

Q506 Q505

IC301

IC601

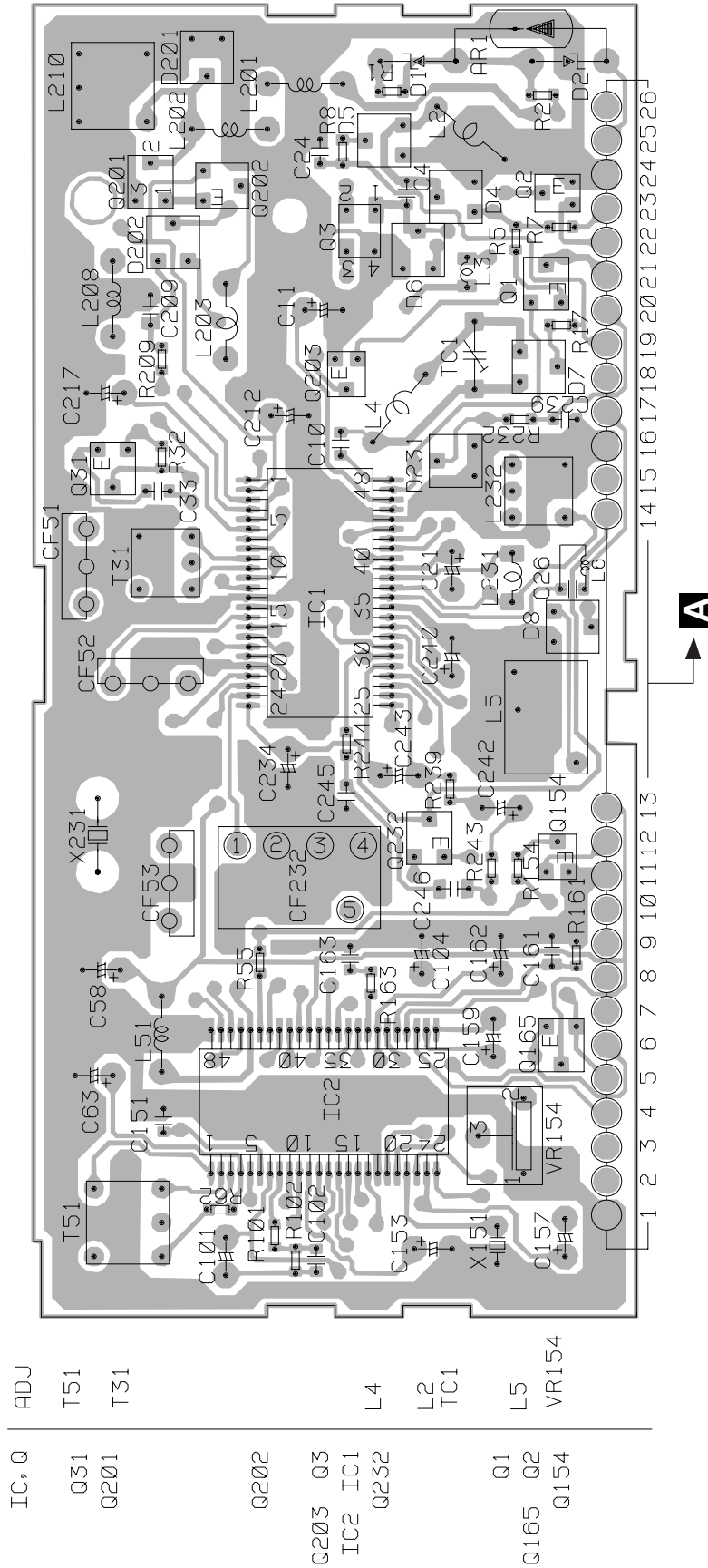
Q306

IC703

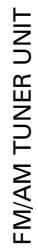
IC701

## 4.2 FM/AM TUNER UNIT

## SIDE A



D

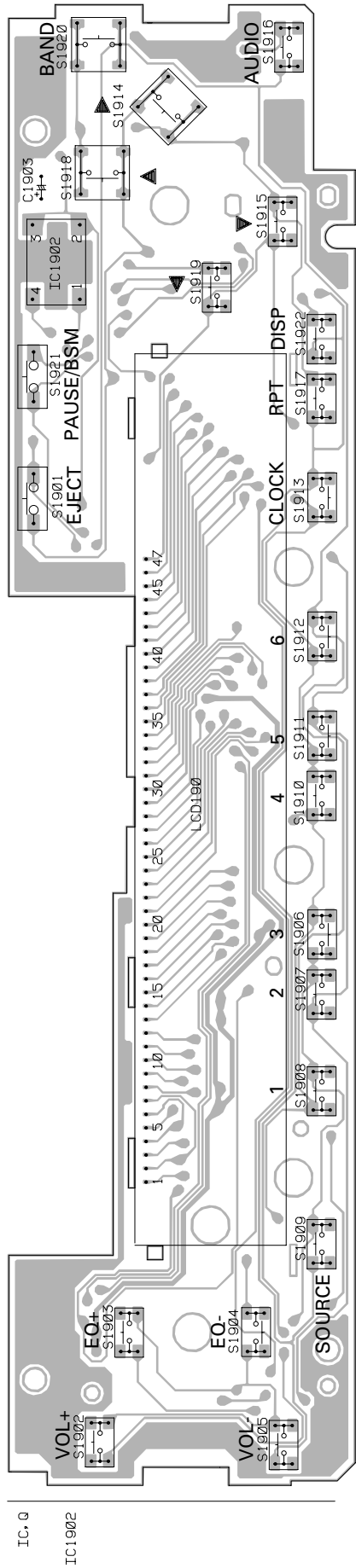


KEH-P490,P4900,P4950

4.3 KEYBOARD UNIT



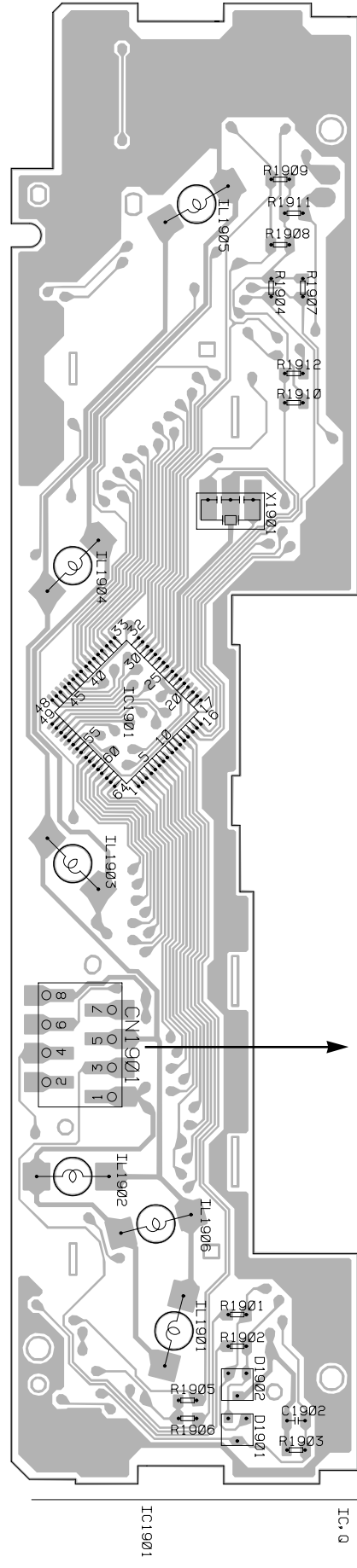
C KEYBOARD UNIT



SIDE A



C KEYBOARD UNIT



SIDE B

A CN601

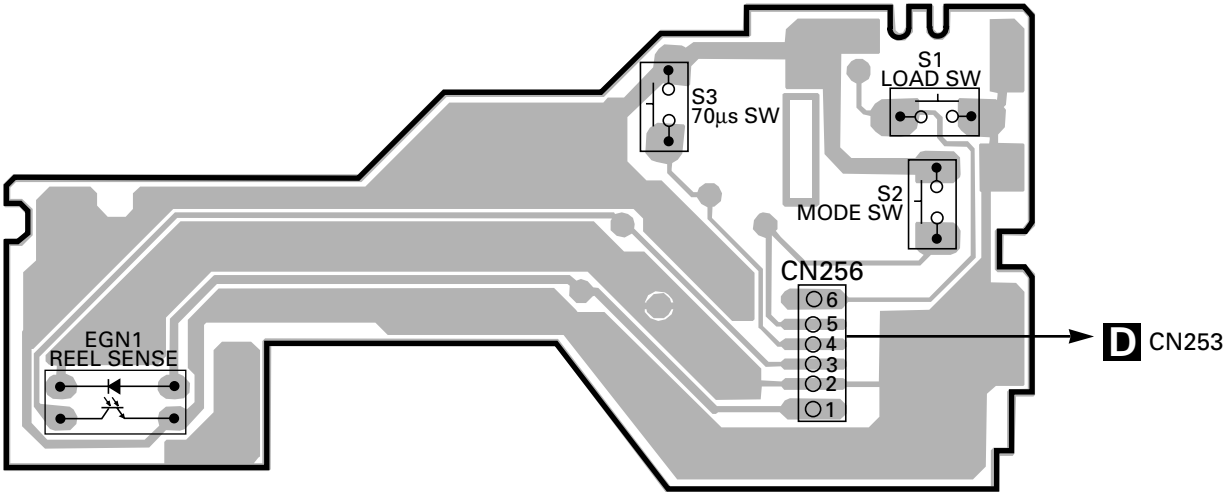
**D** DECK UNIT                      **A** CN602                      SIDE A                      A



A

**E** REEL SENSE PCB

B



C

D

## 5. ELECTRICAL PARTS LIST

### NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
<b>A</b> Unit Number : CWM7021(KEH-P490/X1M/UC)		D 908 Diode	HZS9L(A2)
(KEH-P4900/X1M/UC)		D 909 Diode	1SR139-400
Unit Number : CWM7025(KEH-P4950/X1M/ES)		D 910 Diode	1SR139-400
Unit Name : Tuner Amp Unit		L 401 Inductor	See Contrast table
		L 501 Ferri-Inductor	LAU2R2K
		L 502 Ferri-Inductor	LAU2R2K
		L 601 Ferri-Inductor	LAU2R2K
		L 602 Ferri-Inductor	LAU2R2K
		L 603 Ferri-Inductor	LAU2R2K
		L 702 Ferri-Inductor	LAU2R2K
		L 901 Choke Coil 600μH	CTH1168
		X 501 Crystal Resonator 7.2MHz	CSS1474
		X 601 Ceramic Resonator 4.194MHz	CSS1047
		FM/AM Tunew Unit	See Contrast table
<b>MISCELLANEOUS</b>		<b>RESISTORS</b>	
IC 301 IC	PML003AM	R 301	RS1/10S0R0J
IC 302 IC	TDA7384	R 302	RS1/10S0R0J
IC 501 IC	PM2006A	R 310	RS1/10S103J
IC 601 IC	PE5086A	R 317	RS1/10S152J
IC 602 IC	S-80734AN	R 318	RS1/10S103J
IC 702 IC	CA0008AM	R 319	RS1/10S221J
IC 901 IC	TPD1018F	R 320	RS1/10S101J
Q 306 Transistor	DTC124EK	R 321	RS1/10S223J
Q 307 Transistor	2SC1740S	R 322	RS1/10S153J
Q 308 Transistor	DTC143TK	R 323	RS1/10S103J
Q 309 Transistor	DTC143TK	R 325	RS1/10S821J
Q 310 Transistor	DTA124EK	R 326	RS1/10S821J
Q 401 Transistor	2SC2412K	R 327	RS1/10S223J
Q 505 Transistor	DTA124EK	R 328	RS1/10S223J
Q 506 Transistor	DTC114EK	R 333	RS1/10S101J
Q 601 Transistor	2SA933S	R 334	RS1/10S101J
Q 701 Transistor	2SA1037K	R 335	RS1/10S223J
Q 702 Transistor	DTC114EK	R 336	RS1/10S223J
Q 901 Transistor	2SC1740S	R 337	RD1/4PU102J
Q 902 Transistor	2SC2412K	R 338	RD1/4PU102J
Q 903 Transistor	2SD2037	R 342	RS1/10S0R0J
Q 904 Transistor	2SD2396	R 401	See Contrast table
Q 905 Transistor	2SB1238	R 402	RS1/10S162J
Q 906 Transistor	2SC1740S	R 403	RS1/10S162J
Q 907 Transistor	2SA1048	R 404	RS1/10S0R0J
Q 908 Transistor	DTC114TK	R 405	See Contrast table
Q 909 Transistor	2SA1048	R 406	RS1/10S102J
Q 910 Transistor	DTC114TK	R 407	RD1/4PU222J
Q 911 Transistor	2SC2412K	R 408	RS1/10S222J
Q 920 Transistor	DTC114ES	R 410	RS1/10S102J
Q 921 Transistor	DTA124ES	R 412	RD1/4PU103J
D 301 Diode	1SS270	R 413	RS1/10S393J
D 302 Diode	1SS270	R 417	RS1/10S0R0J
D 401 Diode	1SS270	R 418	RS1/10S0R0J
D 402 Diode	1SS270	R 419	RS1/10S0R0J
D 601 Diode	1SS270	R 502	RS1/10S102J
D 602 Diode	1SS270	R 503	RS1/10S222J
D 603 Diode	1SS270	R 506	RS1/10S182J
D 604 Diode	1SS270	R 511	RS1/10S0R0J
D 605 Diode	1SS270	R 512	See Contrast table
D 606 Diode	1SS270		
D 607 Diode	1SS270		
D 608 Diode	1SS270		
D 901 Diode	HZS7L(C2)		
D 902 Diode	1SR139-400		
D 903 Diode	1SR139-400		
D 904 Diode	HZS7L(A1)		
D 905 Diode	1SR139-400		
D 906 Diode	HZS6L(B2)		
D 907 Diode	HZS9L(B3)		



====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 513	RS1/10S102J	R 725	RD1/4PU472J
R 514	RS1/8S0R0J	R 726	RS1/10S222J
R 515	RS1/10S562J	R 901	RS1/10S473J
R 517	RS1/10S473J	R 902	RS1/10S223J
R 518	RS1/10S152J	R 903	RS1/10S223J
R 519	RS1/10S472J	R 904	RS1/10S473J
R 520	RS1/10S472J	R 905	RD1/4PU102J
R 521	RS1/10S472J	R 906	RD1/4PU473J
R 523	RS1/10S0R0J	R 907	RS1/10S473J
R 524	RS1/10S103J	R 908	RS1/10S472J
R 525	RS1/10S152J	R 909	RS1/10S332J
R 526	RS1/10S392J	R 910	RD1/4PU101J
R 527	RS1/10S392J	R 911	RS1/10S102J
R 528	RS1/10S472J	R 912	RS1/10S103J
R 529	RS1/10S473J	R 913	RS1/10S103J
R 531	RS1/10S104J	R 914	RS1/10S222J
R 532	RS1/10S473J	R 915	RS1/8S103J
R 535	RS1/10S102J	R 916	RS1/10S103J
R 601	RS1/10S124J	R 917	RS1/10S0R0J
R 604	RS1/10S473J	R 919	RS1/10S102J
R 607	RD1/4PU102J	R 920	RS1/10S103J
R 610	RS1/10S473J	R 921	RS1/10S152J
R 611	RS1/10S473J	R 922	RS1/10S102J
R 612	RS1/10S473J	R 923	RS1/10S103J
R 613	RS1/10S473J	R 924	RS1/10S223J
R 614	RS1/8S103J	R 932	RS1/10S473J
R 615	RS1/10S392J	R 944	RS1/10S152J
R 616	RD1/4PU222J	R 949	RS1/8S1R0J
R 617	RD1/4PU223J	R 955	RD1/4PU473J
R 618	RD1/4PU222J		
R 619	RD1/4PU222J	CAPACITORS	
R 621	RS1/10S222J	C 303	CEJA470M10
R 622	RS1/10S222J	C 304	CEJA100M16
R 623	RD1/4PU222J	C 308	CKSQYB104K50
R 624	RS1/10S222J	C 309	CKSQYB224K16
		C 310	CKSQYB224K16
R 625	RD1/4PU222J		
R 626	RD1/4PU222J	C 311	CKSQYB224K16
R 627	RD1/4PU222J	C 312	CKSQYB224K16
R 628	RD1/4PU222J	C 313	CEJA4R7M35
R 629	RD1/4PU681J	C 314	CEJA4R7M35
		C 315	CEJA330M10
R 630	RS1/10S681J		
R 633	RD1/4PU681J	C 316	CEJA1R0M50
R 634	RD1/4PU681J	C 317	CEJA100M16
R 635	RD1/4PU222J	C 318	CKSYB225K16
R 636	RS1/10S472J	C 319	CKSQYB474K16
		C 320	CKSQYB474K16
R 637	RS1/10S103J		
R 638	RD1/4PU222J	C 321	CKSQYB474K16
R 639	RS1/10S223J	C 322	CKSQYB474K16
R 641	RD1/4PU222J	C 323	CKSQYB104K50
R 642	RS1/10S473J	C 324	CCH1169
		C 325	CEJA2R2M50
R 643	RS1/10S472J		
R 644	RS1/10S472J	C 326	CEJA2R2M50
R 645	RS1/10S472J	C 327	CEJA1R0M50
R 646	RS1/10S103J	C 328	CEJA1R0M50
R 647	RS1/10S103J	C 329	CEJA1R0M50
		C 330	CEJA1R0M50
R 648	See Contrast table		
R 649	RS1/10S103J	C 331	CKSQYB153K50
R 651	RD1/4PU222J	C 332	CKSQYB153K50
R 653	RS1/8S0R0J	C 391	CKSQYB225K10
R 654	RS1/10S0R0J	C 392	CKSYB474K16
		C 393	CKSYB474K16
R 655	RS1/10S473J		
R 716	RS1/10S620J	C 394	CKSYB474K16
R 717	RS1/10S101J	C 395	CKSYB474K16
R 718	RS1/10S101J	C 401	CKSQYB473K50
R 719	RS1/10S473J	C 402	CKSQYB473K50
		C 403	CKSQYB223K25
R 720	RS1/10S473J		
R 721	RS1/10S102J		
R 722	RS1/10S102J		
R 723	RS1/10S102J		
R 724	RS1/10S223J		

====Circuit Symbol and No.===Part Name		Part No.	====Circuit Symbol and No.===Part Name		Part No.
C 407		CKSQYB223K50	C 530		CEJA220M10
C 408		CCSQSL101J50	C 601		CKSQYB473K50
C 411		CCSQSL101J50	C 602		CEJA2R2M50
C 413		CKSQYB223K50	C 603		CKSQYB103K50
C 414		CKSQYB103K50	C 604		CCSQCH101J50
C 504		CKSQYB103K50	C 608		CEJA4R7M35
C 505		CKSQYB103K50	C 609		CEJA100M16
C 506		See Contrast table	C 610		CEJA220M10
C 507		CEJA220M6R3	C 611		CKSQYB223K50
C 508		CKSQYB102K50	C 715		CKSQYB102K50
C 510		CCSQSL101J50	C 716		CKSQYB104K50
C 511		CKSQYB103K50	C 901		CEJA101M10
C 512		CKSQYB103K50	C 902		CKSQYB473K50
C 513		CKSQYB103K50	C 903	470μF/16V	CCH1183
C 514		CCSQCH150J50	C 904		CKSQYB103K50
C 515		CKSQYB102K50			
C 516		CCSQCH150J50	C 905	330μF/10V	CCH1181
C 518		CKSQYB103K50	C 906		CKSQYB103K50
C 519		CEJA220M6R3	C 907	100μF/16V	CCH1179
C 520		CKSQYB103K50	C 908		CKSQYB103K50
C 521		CEJA220M6R3	C 910		CKSQYB473K50
C 522		CKSQYB103K50			
C 524		CKSQYB103K50			
C 525	4.7μF/16V	CCH1250			
C 527		CKLSR473K16			
C 528		CKSQYB154K16			

### CONTRAST TABLE of TUNER AMP UNIT

**KEH-P490/X1M/UC, KEH-P4900/X1M/UC and KEH-P4950/X1M/ES are constructed same except for the following:**

Symbol and Description	Part No.	
	KEH-P490/X1M/UC KEH-P4900/X1M/UC	KEH-P4950/X1M/ES
FM/AM Tuner Unit	CWE1467	CWE1486
Inductor	LCTBR39K2125	Not used
L401	Not used	RS1/10S182J
R401	Not used	RS1/10S510J
R405	RS1/10S0R0J	Not used
R512		
R648	Not used	RS1/10S183J
C506	Not used	CKSQYB103K50

====Circuit Symbol and No.==Part Name			Part No.	====Circuit Symbol and No.==Part Name			Part No.
<b>B</b>	Unit Number : CWE1467(KEH-P490/X1M/UC)			D	8	Diode	KV1410-F1
	(KEH-P4900/X1M/UC)			D	201	Diode	MA157
	Unit Name : FM/AM Tuner Unit			D	202	Diode	MA157
MISCELLANEOUS				D	231	Diode	SVC253
				L	2	Coil	CTC1133
IC	1	IC	PA4023B	L	3	Inductor	LCTB2R2K2125
IC	2	IC	PA4024A	L	4	Coil	CTC1133
Q	1	Transistor	2SC2412K	L	5	Coil	CTC1132
Q	2	Transistor	DTC124EU	L	51	Ferri-Inductor	LAU150K
Q	3	FET	3SK263	L	201	Ferri-Inductor	LAU4R7K
Q	31	Transistor	2SC2412K	L	202	Ferri-Inductor	LAU330K
Q	201	FET	2SK932	L	203	Inductor	CTF1287
Q	202	Transistor	2SC2412K	L	208	Inductor	LAU121K
Q	203	Transistor	DTC124EU	L	231	Inductor	LCTA3R3J3225
D	1	Diode	RD39JS	T	31	Coil	CTE1117
D	2	Diode	RD39JS	T	51	Coil	CTC1159
D	4	Diode	1SV250	CF	51	Ceramic Filter	CTF1441
D	5	Diode	KV1410-F1	CF	52	Ceramic Filter	CTF1441
D	6	Diode	MA157	CF	53	Ceramic Filter	CTF1441
D	7	Diode	KV1410-F1	CF	232	Ceramic Filter	CTF1348

====Circuit Symbol and No.==Part Name

Part No.

X 151 Radiator 918.5Hz  
 X 231 Crystal Resonator 10.26MHz  
 VR 154 Semi-fixed 150kΩ(B)

## RESISTORS

R	1	RS1/16S225J
R	2	RS1/16S225J
R	4	RS1/16S154J
R	5	RS1/16S391J
R	6	RS1/16S223J
R	7	RS1/16S123J
R	8	RS1/16S332J
R	9	RS1/16S473J
R	10	RS1/16S223J
R	11	RS1/16S124J
R	13	RS1/16S563J
R	15	RS1/16S271J
R	16	RS1/16S104J
R	17	RS1/16S332J
R	18	RS1/16S332J
R	31	RS1/16S470J
R	32	RS1/16S822J
R	33	RS1/16S822J
R	34	RS1/16S331J
R	35	RS1/16S331J
R	40	RS1/16S470J
R	51	RS1/16S271J
R	52	RS1/16S560J
R	55	RS1/16S102J
R	56	RS1/16S823J
R	61	RS1/16S392J
R	62	RS1/16S273J
R	101	RS1/16S272J
R	102	RS1/16S682J
R	103	RS1/16S333J
R	104	RS1/16S334J
R	105	RS1/16S683J
R	107	RS1/16S222J
R	151	RS1/16S222J
R	152	RS1/16S393J
R	155	RS1/16S273J
R	156	RS1/16S243J
R	157	RS1/16S203J
R	160	RS1/16S222J
R	161	RS1/16S563J
R	162	RS1/16S105J
R	163	RS1/16S223J
R	202	RS1/16S223J
R	203	RS1/16S225J
R	204	RS1/16S103J
R	206	RS1/16S220J
R	207	RS1/16S101J
R	208	RS1/16S102J
R	209	RS1/16S471J
R	214	RS1/16S822J
R	215	RS1/16S822J
R	217	RS1/16S102J
R	231	RS1/16S272J
R	232	RS1/16S473J
R	237	RS1/16S103J
R	238	RS1/16S104J
R	239	RS1/16S104J
R	240	RS1/16S332J
R	241	RS1/16S202J
R	243	RS1/16S183J
R	244	RS1/16S392J
R	247	RS1/16S123J

====Circuit Symbol and No.==Part Name

Part No.

## CAPACITORS

C	1	CCSQCH6R0D50
C	2	CCSRCK2R0C50
C	4	CCSRCH820J50
C	6	CCSRCH820J50
C	8	CKSRYB103K25
C	9	CKSQYB104K16
C	10	CCSRCKR50C50
C	11	CEJA1R0M50
C	12	CKSRYB222K50
C	13	CKSRYB222K50
C	14	CCSRCH220J50
C	15	CCSRCH6R0D50
C	16	CCSRCH8R0D50
C	17	CKSRYB222K50
C	18	CKSRYB103K25
C	19	CKSRYB222K50
C	20	CKSRYB222K50
C	21	CEJA100M16
C	22	CCSRTH9R0D50
C	23	CCSRTH120J50
C	24	CCSRCH471J50
C	25	CKSRYB103K25
C	26	CCSRCH101J50
C	31	CKSRYB103K25
C	32	CKSQYB472K50
C	33	CCSRCH5R0C50
C	34	CKSQYB104K16
C	36	CCSRRH201J50
C	51	CKSRYB223K25
C	52	CKSRYB103K25
C	54	CCSRCH470J50
C	55	CKSQYB223K25
C	56	CKSQYB104K16
C	57	CKSRYB472K50
C	58	CEJA330M10
C	59	CKSRYB103K25
C	60	CKSRYB102K50
C	61	CCSRCH270J50
C	62	CKSRYB103K25
C	63	CEJAR22M50
C	101	CEJANP100M10
C	102	CKSRYB182K50
C	103	CKSRYB682K25
C	104	CEJA2R2M50
C	105	CKSRYB103K25
C	106	CCSRCH151J50
C	107	CKSRYB103K25
C	151	CKSRYB472K50
C	152	CKSQYB104K16
C	153	CEJA3R3M50
C	154	CKSQYB104K16
C	157	CEJA3R3M50
C	158	CKSYB474K16
C	159	CEJA220M6R3
C	160	CKSQYB104K16
C	161	CKSQYB104K16
C	162	CEJA3R3M50
C	163	CKSRYB102K50
C	170	CCSRCH100D50
C	201	CCSRCH471J50
C	202	CCSRCH100D50
C	203	CKSRYB332K50
C	204	CKSQYB473K16
C	205	CKSQYB473K16
C	206	CKSQYB104K16

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.	
C 207	CCSRCH560J50	CF 232	Ceramic Filter	CTF1348
C 209	CKSQYB104K16	X 151	Radiator 918.5Hz	CSS1365
C 211	CCSRCH101J50	X 231	Crystal Resonator 10.26MHz	CSS1111
C 212	CEJA470M6R3	VR 154	Semi-fixed 150kΩ(B)	CCP1213
C 213	CKSRYB103K25			
		RESISTORS		
C 216	CCSRCH101J50	R 1		RS1/16S225J
C 217	CEJA1R5M50	R 2		RS1/16S225J
C 219	CCSRCH471J50	R 4		RS1/16S154J
C 220	CKSRYB103K25	R 5		RS1/16S391J
C 230	CKSRYB103K25	R 6		RS1/16S223J
C 231	CCSRCH330J50	R 7		RS1/16S123J
C 232	CCSRCH150J50	R 8		RS1/16S332J
C 233	CKSQYB104K16	R 9		RS1/16S473J
C 234	CEJA330M10	R 10		RS1/16S223J
C 235	CKSRYB332K50	R 11		RS1/16S124J
C 236	CKSQYB473K16	R 13		RS1/16S563J
C 237	CCSRCH120J50	R 15		RS1/16S271J
C 239	CKSRYB472K50	R 16		RS1/16S104J
C 240	CEJAR47M50	R 17		RS1/16S332J
C 241	CKSQYB104K16	R 18		RS1/16S332J
C 242	CEJAR47M50	R 31		RS1/16S470J
C 243	CEJAR33M50	R 32		RS1/16S822J
C 244	CKSQYB473K16	R 33		RS1/16S822J
C 245	CKSRYB333K16	R 34		RS1/16S331J
C 246	CKSQYB473K16	R 35		RS1/16S331J
C 250	CCSRCH471J50	R 40		RS1/16S470J
		R 51		RS1/16S271J
		R 52		RS1/16S560J
		R 55		RS1/16S102J
		R 56		RS1/16S823J
		R 61		RS1/16S392J
		R 62		RS1/16S273J
		R 101		RS1/16S272J
		R 102		RS1/16S682J
		R 103		RS1/16S333J
		R 104		RS1/16S334J
		R 105		RS1/16S683J
		R 107		RS1/16S222J
		R 151		RS1/16S222J
		R 152		RS1/16S393J
		R 155		RS1/16S273J
		R 156		RS1/16S243J
		R 157		RS1/16S203J
		R 160		RS1/16S222J
		R 161		RS1/16S563J
		R 162		RS1/16S105J
		R 163		RS1/16S223J
		R 202		RS1/16S223J
		R 203		RS1/16S225J
		R 204		RS1/16S103J
		R 206		RS1/16S220J
		R 207		RS1/16S101J
		R 208		RS1/16S102J
		R 209		RS1/16S471J
		R 214		RS1/16S822J
		R 215		RS1/16S822J
		R 217		RS1/16S102J
		R 231		RS1/16S272J
		R 232		RS1/16S473J
		R 237		RS1/16S103J
		R 238		RS1/16S104J
		R 239		RS1/16S104J
		R 240		RS1/16S332J
		R 241		RS1/16S202J
		R 243		RS1/16S183J
		R 244		RS1/16S392J
		R 247		RS1/16S123J

B

Unit Number : CWE1486(KEH-P4950/X1M/ES)  
Unit Name : FM/AM Tuner Unit


MISCELLANEOUS

IC 1	IC	PA4023B		
IC 2	IC	PA4024A		
Q 1	Transistor	2SC2412K		
Q 2	Transistor	DTC124EU		
Q 3	FET	3SK263		
Q 31	Transistor	2SC2412K		
Q 201	FET	2SK932		
Q 202	Transistor	2SC2412K		
Q 203	Transistor	DTC124EU		
D 1	Diode	RD39JS		
D 2	Diode	RD39JS		
D 4	Diode	1SV250		
D 5	Diode	KV1410-F1		
D 6	Diode	MA157		
D 7	Diode	KV1410-F1		
D 8	Diode	KV1410-F1		
D 201	Diode	MA157		
D 202	Diode	MA157		
D 231	Diode	SVC253		
L 2	Coil	CTC1133		
L 3	Inductor	LCTB2R2K2125		
L 4	Coil	CTC1133		
L 5	Coil	CTC1132		
L 6	Inductor	LCTBR15K1608		
L 51	Ferri-Inductor	LAU150K		
L 201	Ferri-Inductor	LAU4R7K		
L 202	Ferri-Inductor	LAU330K		
L 203	Inductor	CTF1287		
L 208	Inductor	LAU121K		
L 231	Inductor	LCTA3R3J3225		
T 31	Coil	CTE1117		
T 51	Coil	CTC1159		
CF 51	Ceramic Filter	CTF1441		
CF 52	Ceramic Filter	CTF1441		
CF 53	Ceramic Filter	CTF1441		
		R 244		RS1/16S392J
		R 247		RS1/16S123J

**B** Unit Number : CWE1486(KEH-P4950/X1M/ES)  
Unit Name : FM/AM Tuner Unit

#### MISCELLANEOUS

IC 1	IC	PA4023B		
IC 2	IC	PA4024A		
Q 1	Transistor	2SC2412K		
Q 2	Transistor	DTC124EU		
Q 3	FET	3SK263		
Q 31	Transistor	2SC2412K		
Q 201	FET	2SK932		
Q 202	Transistor	2SC2412K		
Q 203	Transistor	DTC124EU		
D 1	Diode	RD39JS		
D 2	Diode	RD39JS		
D 4	Diode	1SV250		
D 5	Diode	KV1410-F1		
D 6	Diode	MA157		
D 7	Diode	KV1410-F1		
D 8	Diode	KV1410-F1		
D 201	Diode	MA157		
D 202	Diode	MA157		
D 231	Diode	SVC253		
L 2	Coil	CTC1133		
L 3	Inductor	LCTB2R2K2125		
L 4	Coil	CTC1133		
L 5	Coil	CTC1132		
L 6	Inductor	LCTBR15K1608		
L 51	Ferri-Inductor	LAU150K		
L 201	Ferri-Inductor	LAU4R7K		
L 202	Ferri-Inductor	LAU330K		
L 203	Inductor	CTF1287		
L 208	Inductor	LAU121K		
L 231	Inductor	LCTA3R3J3225		
T 31	Coil	CTE1117		
T 51	Coil	CTC1159		
CF 51	Ceramic Filter	CTF1441		
CF 52	Ceramic Filter	CTF1441		
CF 53	Ceramic Filter	CTF1441		

====Circuit Symbol and No.===Part Name	Part No.	====Circuit Symbol and No.===Part Name	Part No.
<b>CAPACITORS</b>			
C 1	CCSQCH6R0D50	C 209	CKSQYB104K16
C 2	CCSRCK2R0C50	C 211	CCSRCH101J50
C 4	CCSRCH820J50	C 212	CEJA470M6R3
C 6	CCSRCH820J50	C 213	CKSRYB103K25
C 8	CKSRYB103K25	C 216	CCSRCH101J50
C 9	CKSQYB104K16	C 217	CEJA1R5M50
C 10	CCSRCKR50C50	C 219	CCSRCH471J50
C 11	CEJA1R0M50	C 220	CKSRYB103K25
C 12	CKSRYB222K50	C 230	CKSRYB103K25
C 13	CKSRYB222K50	C 231	CCSRCH330J50
C 14	CCSRCH220J50	C 232	CCSRCH150J50
C 15	CCSRCH6R0D50	C 233	CKSQYB104K16
C 16	CCSRCH8R0D50	C 234	CEJA330M10
C 17	CKSRYB222K50	C 235	CKSRYB332K50
C 18	CKSRYB103K25	C 236	CKSQYB473K16
C 19	CKSRYB222K50	C 237	CCSRCH120J50
C 20	CKSRYB222K50	C 239	CKSRYB472K50
C 21	CEJA100M16	C 240	CEJAR47M50
C 22	CCSRTH9R0D50	C 241	CKSQYB104K16
C 23	CCSRTH120J50	C 242	CEJAR47M50
C 24	CCSRCH471J50	C 243	CEJAR33M50
C 25	CKSRYB103K25	C 244	CKSQYB473K16
C 31	CKSRYB103K25	C 245	CKSRYB333K16
C 32	CKSQYB472K50	C 246	CKSQYB473K16
C 33	CCSRCH5R0C50	C 250	CCSRCH471J50
C 34	CKSQYB104K16	 Unit Number : CWM7022(KEH-P490/X1M/UC) Unit Number : CWM7024(KEH-P4900/X1M/UC) (KEH-P4950/X1M/ES)	
C 36	CCSRRH201J50		
C 51	CKSRYB223K25	Unit Name : Keyboard Unit	
C 52	CKSRYB103K25	<b>MISCELLANEOUS</b>	
C 54	CCSRCH470J50	IC 1901	IC PD6278C
C 55	CKSQYB223K25	IC 1902	HIC Module(KEH-P490/X1M/UC) RS-140
C 56	CKSQYB104K16	D 1901	Chip Diode MA151WK
C 57	CKSRYB472K50	D 1902	Chip Diode MA151WA
C 58	CEJA330M10	X 1901	Ceramic Resonator 4.97MHz CSS1422
C 59	CKSRYB103K25	S 1901	Switch CSG1041
C 60	CKSRYB102K50	S 1902	Push Switch CSG1111
C 61	CCSRCH270J50	S 1903	Push Switch CSG1111
C 62	CKSRYB103K25	S 1904	Push Switch CSG1111
C 63	CEJAR22M50	S 1905	Push Switch CSG1111
C 101	CEJANP100M10	S 1906	Push Switch CSG1111
C 102	CKSRYB182K50	S 1907	Push Switch CSG1111
C 103	CKSRYB682K25	S 1908	Push Switch CSG1111
C 104	CEJA2R2M50	S 1909	Push Switch CSG1111
C 105	CKSRYB103K25	S 1910	Push Switch CSG1111
C 106	CCSRCH151J50	S 1911	Push Switch CSG1111
C 107	CKSRYB103K25	S 1912	Push Switch CSG1111
C 151	CKSRYB472K50	S 1913	Push Switch CSG1111
C 152	CKSQYB104K16	S 1914	Switch CSG1110
C 153	CEJA3R3M50	S 1915	Push Switch CSG1111
C 154	CKSQYB104K16	S 1916	Push Switch CSG1111
C 157	CEJA3R3M50	S 1917	Push Switch CSG1111
C 158	CKSYB474K16	S 1918	Switch CSG1110
C 159	CEJA220M6R3	S 1919	Push Switch CSG1111
C 160	CKSQYB104K16	S 1920	Switch CSG1110
C 161	CKSQYB104K16	S 1921	Switch CSG1041
C 162	CEJA3R3M50	S 1922	Push Switch CSG1111
C 163	CKSRYB102K50	IL 1901	Lamp 14V 40mA CEL1549
C 170	CCSRCH100D50	IL 1902	Lamp 14V 40mA CEL1549
C 201	CCSRCH471J50	IL 1903	Lamp 14V 40mA CEL1549
C 202	CCSRCH100D50	IL 1904	Lamp 14V 40mA CEL1549
C 203	CKSRYB332K50	IL 1905	Lamp 14V 40mA CEL1549
C 204	CKSQYB473K16	LCD1901	LCD CAW1563
C 205	CKSQYB473K16		
C 206	CKSQYB104K16		
C 207	CCSRCH560J50		

====Circuit Symbol and No.==Part Name

Part No.

## RESISTORS

R	1901	RS1/10S222J
R	1902	RS1/10S222J
R	1903	RS1/10S472J
R	1904	RS1/10S473J
R	1905	RS1/10S473J
R	1906	RS1/10S473J
R	1907	RS1/10S473J
R	1908	RS1/10S473J
R	1909	RS1/10S473J
R	1910	RS1/10S473J
	(KEH-P4900/X1M/UC)	
	(KEH-P4950/X1M/ES)	
R	1911	RS1/10S121J
R	1912	RS1/10S2R2J

## CAPACITORS

C	1902	CKSQYB104K16
C	1903	CEAL100M16

**D** Unit Number : EWM1023  
Unit Name : Deck Unit

## MISCELLANEOUS

IC	251	IC	CXA2559Q
IC	351	IC	PA2020A
D	352	Diode	1SS355

## RESISTORS

R	255	RS1/16S221J
R	256	RS1/16S221J
R	257	RS1/16S102J
R	258	RS1/16S102J
R	271	RS1/16S102J
R	272	RS1/16S102J
R	273	RS1/16S102J
R	274	RS1/16S102J
R	281	RS1/8S0R0J
R	282	RS1/8S0R0J
R	283	RS1/8S0R0J
R	284	RS1/8S0R0J
R	285	RS1/16S0R0J
R	286	RS1/16S0R0J
R	287	RS1/8S0R0J
R	290	RS1/8S0R0J
R	301	RS1/16S183J
R	302	RS1/16S163J
R	303	RS1/16S163J
R	304	RS1/16S163J
R	305	RS1/16S163J
R	323	RS1/8S0R0J
R	351	RS1/16S102J
R	352	RS1/16S102J
R	353	RS1/16S102J
R	354	RS1/16S102J
R	355	RS1/10S274J
R	362	RS1/8S301J
R	373	RS1/8S0R0J
R	374	RS1/8S0R0J
R	401	RS1/16S472J
R	402	RS1/16S183J
R	403	RS1/16S823J

====Circuit Symbol and No.==Part Name

Part No.

## CAPACITORS

C	251	CKSRYB331K50
C	252	CKSRYB331K50
C	253	CKSRYB331K50
C	254	CKSRYB331K50
C	255	CKSRYB103K50
C	256	CKSRYB103K50
C	272	CKSRYB104K16
C	273	CEJA220M16
C	301	CKSRYB104K16
C	302	CKSRYB104K16
C	313	CCSRCH101J50
C	351	CKSYB224K25
C	352	CKSRYB392K50
C	353	CKSRYB103K50
C	354	CKSRYB103K50
C	355	CKSYB104K50
C	356	CKSRYB103K50
C	401	CKSQYB334K16
C	402	CKSRYB392K50
C	403	CKSRYB683K16

**E** Unit Number :  
Unit Name : Reel Sense PCB

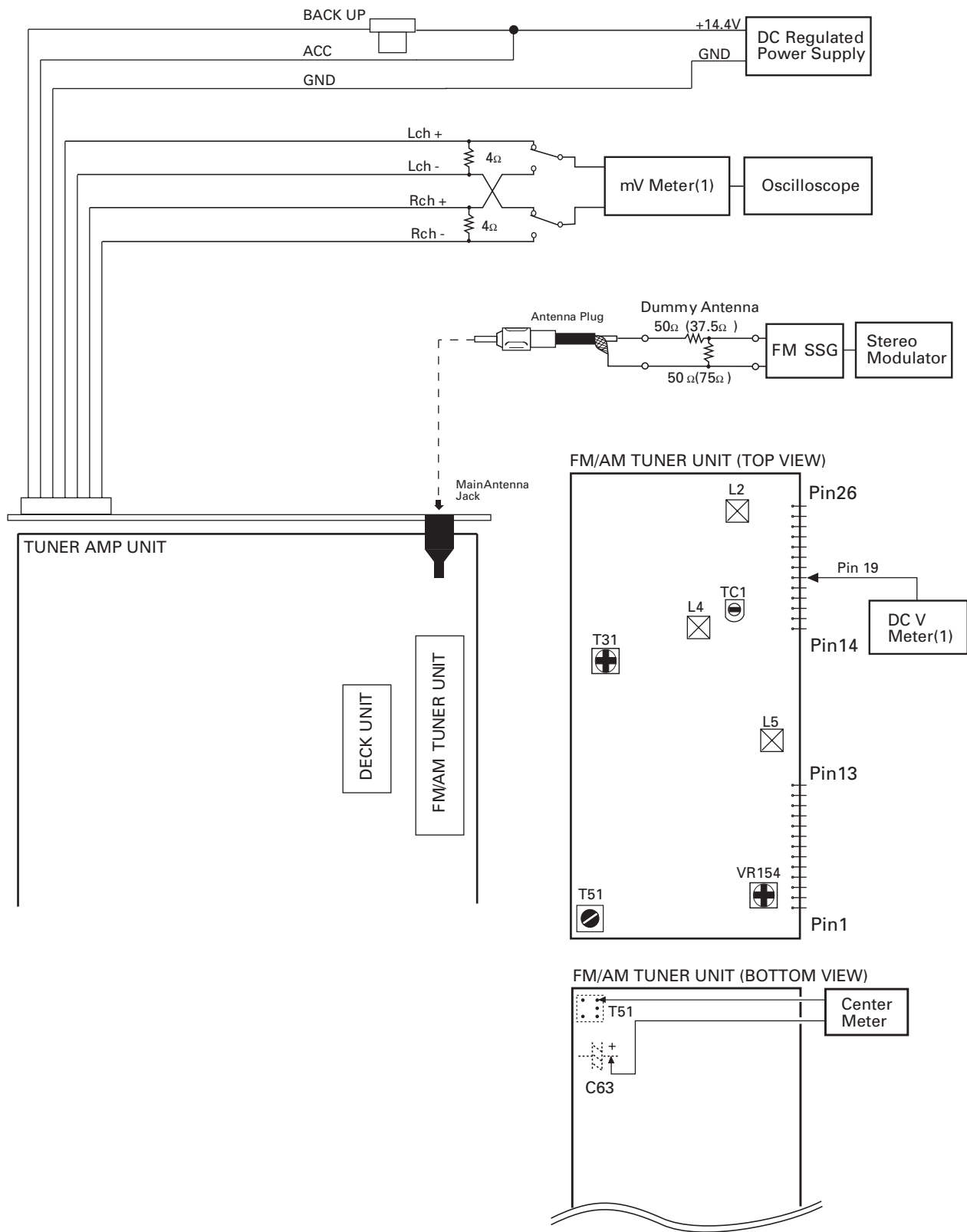
S	1	Switch(LOAD)	ESG1007
S	2	Switch(MODE)	ESG1007
EGN	1	Photo-reflector	EGN1004

## Miscellaneous Parts List

M	1	Motor Unit(MAIN)	EXA1491
M	2	Motor Unit(SUB)	EXA1580
HD	1	Head Assy	EXA1506
		Fuse(10A)	CEK1136

6. ADJUSTMENT

● Connection Diagram



**FM ADJUSTMENT (UC MODEL)**

Modulation M:MONO MOD., 400Hz 30%(22.5kHz Dev.) or 400Hz 100%(75kHz Dev.)

S:STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	107.9	L5	DC V Meter(1) : 6V
IF	2	98.1 M	60—100	98.1	T51	Center Meter : 0
ANT Coil	3	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	4	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	5	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	6	98.1 S	40	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

**FM ADJUSTMENT (ES MODEL)**

Modulation M:MONO MOD., 400Hz 30%(22.5kHz Dev.) or 400Hz 100%(75kHz Dev.)

S:STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	108.0	L5	DC V Meter(1) : 6V
IF	2	98.1 M	60—100	98.1	T51	Center Meter : 0
ANT Coil	3	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	4	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	5	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	6	98.1 S	40	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)



## 7. GENERAL INFORMATION

### 7.1 DISASSEMBLY

#### ● Remove the Case(not shown)

- 1.Remove the two screws.
- 2.Remove the Case.

#### ● Remove the Cassette Mechanism Module (not shown)

- 1.Remove the four screws.
- 2.Disconnect the connector, and then remove the Cassette Mechanism Module.

#### ● Remove the Panel Unit(Fig.1)

- ➡ 1 Disengage the stopper at two locations indicated by arrow.

- ➡ 2 Remove the Panel Unit.

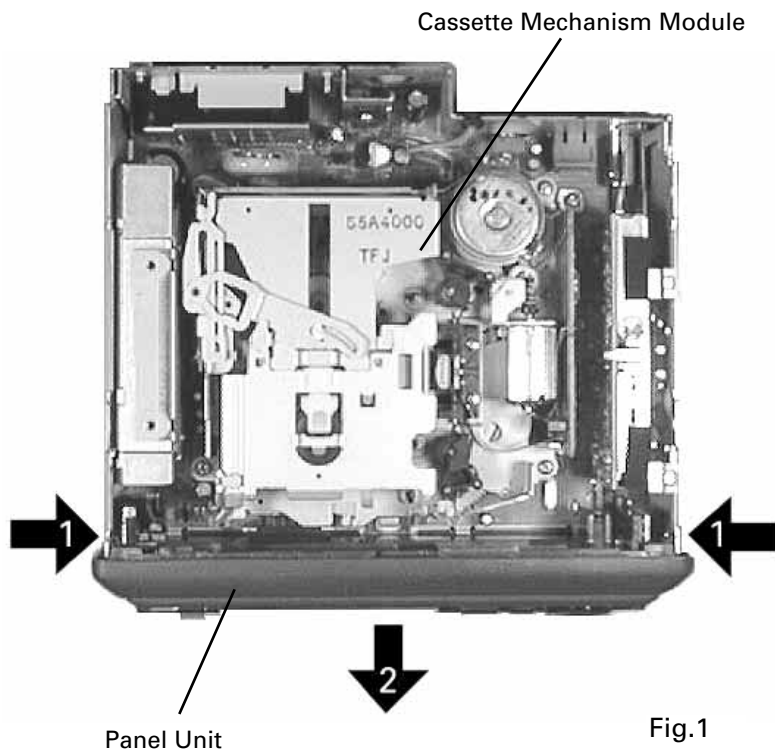


Fig.1

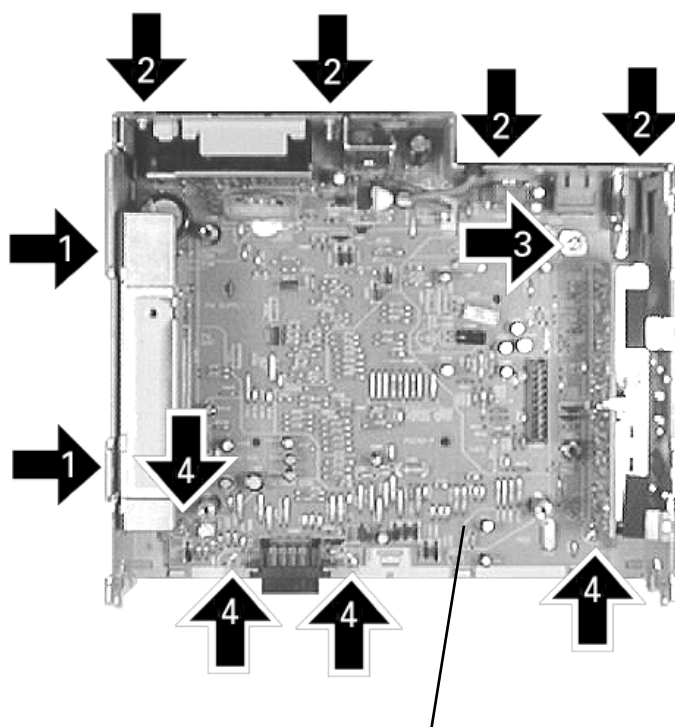
#### ● Remove the Tuner Amp Unit(Fig.2)

- ➡ 1 Remove the two screws.

- ➡ 2 Remove the four screws.

- ➡ 3 Remove the screw.

- ➡ 4 Unbend the tabs at four locations indicated by arrow until straight.  
Remove the Tuner Amp Unit.



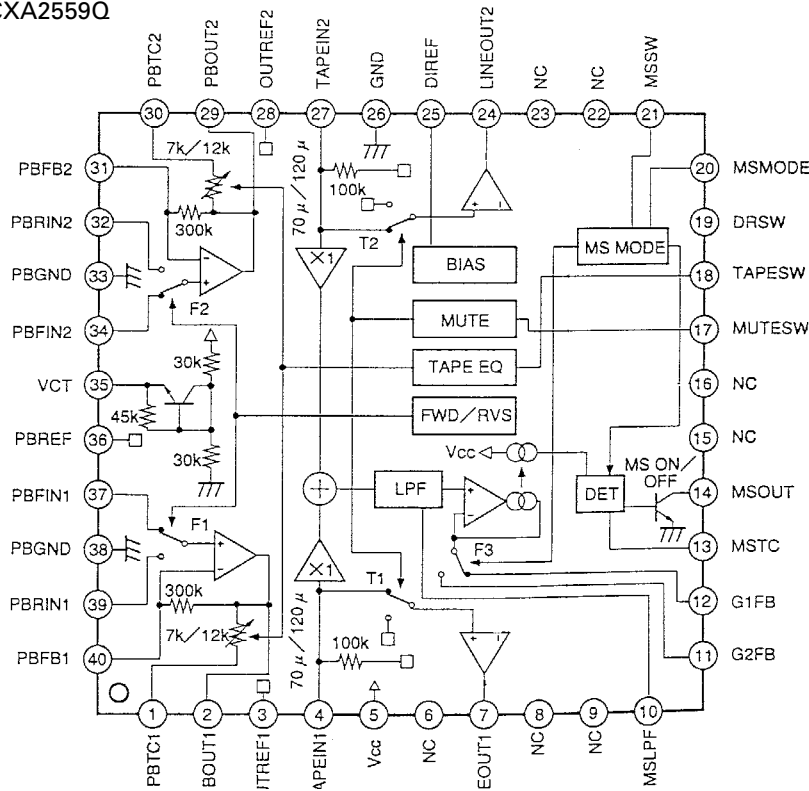
Tuner Amp Unit

Fig.2

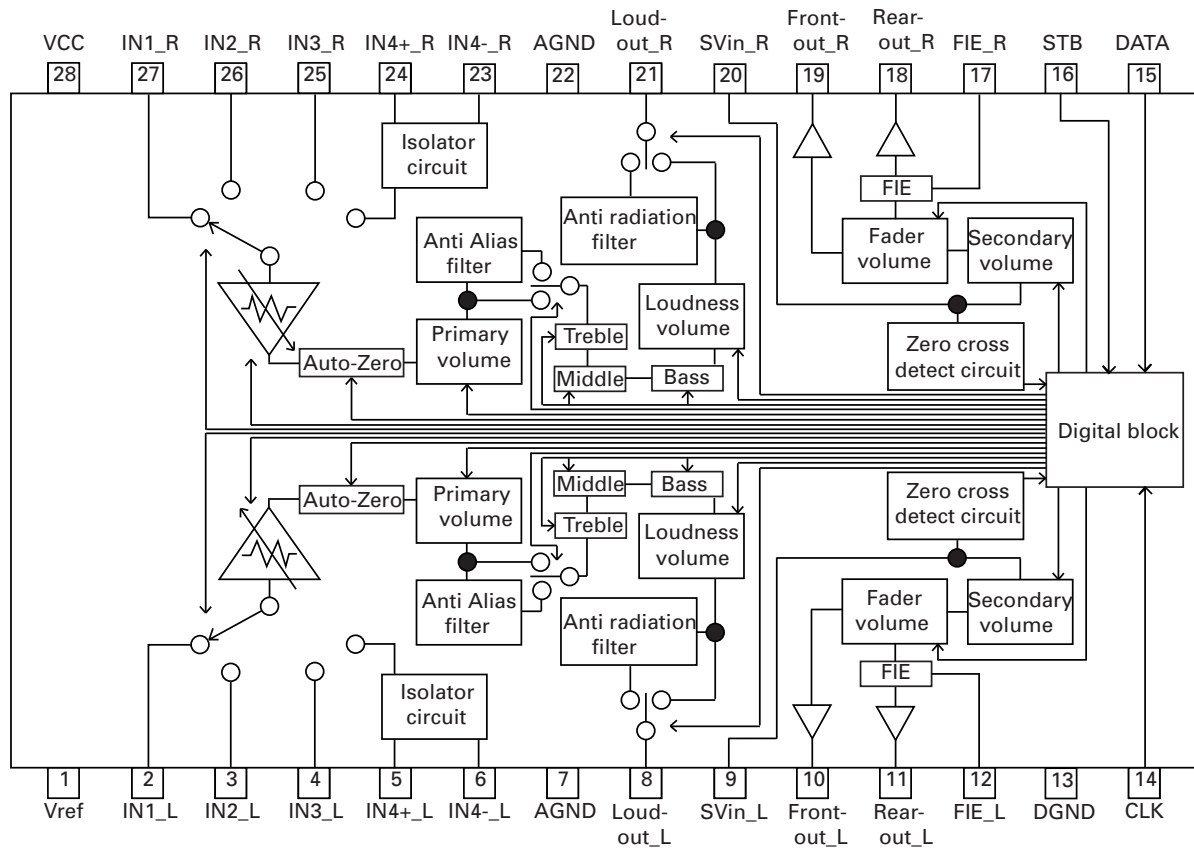
## 7.2 PARTS

### 7.2.1 IC

CXA2559Q



PML003AM

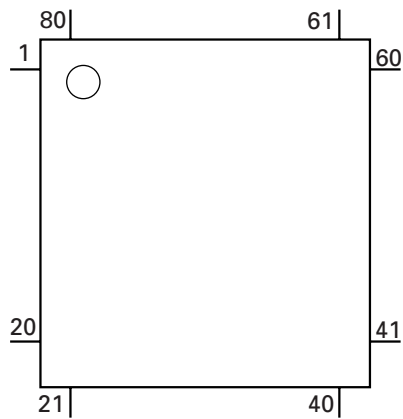


## ● Pin Functions(PE5086A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	ASENBO	O	C	Slave power supply control output
2	NC			Not used
3	ADPW	O	C	A/D converter power
4	AVSS			GND
5	SWVDD	O	C	Grille power supply control output
6	ST	I		FM stereo input
7	AVREF1			D/A converter standard voltage
8	KYDT	I		Grille MicroComputer data input
9	DPDT	O	C	Grille MicroComputer data output
10	NC			Not used
11	TUNPD1	I		PLL IC data input
12	TUNPD0	O	C	PLL IC data output
13	TUNPCK	O	C	PLL IC clock output
14	TUNPCE	O	C	PLL IC chip enable output
15	CURRRQ	O	C	Tuner voltage FIX output
16	NC			Not used
17	TX	O	C	IP-BUS data output
18-12	NC			Not used
22	VST	O	C	Strobe pulse output for electronic volume
23	VCK	O	C	Clock output for electronic volume
24	VDT	O	C	Data output for electronic volume
25-28	NC			Not used
29	FM	O	C	FM power control output
30	AM	O	C	AM power control output
31	CM	O	C	Cassette mechanism capstan motor control output
32	NC			Not used
33	VSS			GND
34	SC2	O	C	Cassette mechanism sub motor control output
35	SC1	O	C	Cassette mechanism sub motor control output
36	MS	I		Cassette mechanism MS sense input
37	MCMUTE	I		Cassette mechanism mute input
38	MTL	I		Metal sense input
39	NC			Not used
40	N/R	O	C	Normal reverse output
41	PLAY	O	C	Tape MS filter select output
42	LOADSW	I		Tape loading input
43	POS	I		Cassette mechanism position sense input
44	RES	I		Cassette mechanism reverse end sense input
45	PEE	O	C	Beep tone output
46	NES	I		Cassette mechanism forward end sense input
47	NC			Not used
48	STBY	O	C	Stand-by output
49-52	NC			Not used
53	SD	I		SD input
54	MUTE	O	C	Mute output
55	SYSPW	O	C	System power supply control output
56-59	NC			Not used
60	RESET	I		Reset input
61	RX	I		IP-BUS data input
62	NC			Not used
63	DSENS	I		Grille detach sense input
64	TELIN	I		Cellular mute input
65	ASENS	I		ACC power sense input
66	BSENS	I		Back up power sense input
67	CLKIN	I		Clock sense input
68	VDD			VDD
69	X2	O	C	Oscillator output
70	X1	I		Oscillator input

Pin No.	Pin Name	I/O	Format	Function and Operation
71	GND			GND
72	NC			Not used
73	TESTIN	I		Test program mode input
74	AVDD			A/D converter analog power supply (VDD)
75	AVREF0	I		A/D converter standard voltage input
76	SL	I		Signal level input
77,78	MODEL2,1	I		Model select input
79,80	NC			Not used

\*PE5086A



Format	Meaning
C	C MOS

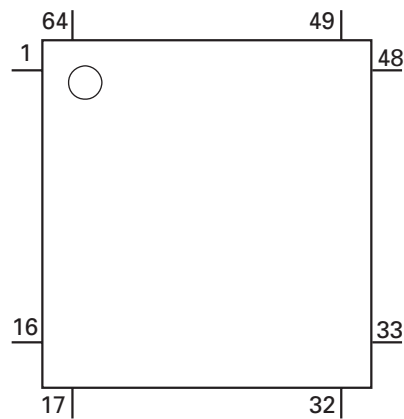
IC's marked by\* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

● Pin Functions (PD6278C)

Pin No.	Pin Name	I/O	Function and Operation
1-5	SEG4-0	O	LCD segment output
6-9	COM3-0	O	LCD common output
10	V3		LCD drive power supply
11-14	KS4-1	O	Key strobe output
15,16	KD1,2	I	Key data input (analogue input)
17	REM	I	Remote control reception
18	RXD	I	System micro computer UART communication data input
19	RST	I	System reset
20	TXD	O	System micro computer UART communication data output
21	MODA		GND
22	X0		Crystal oscillator connection pin
23	X1		Crystal oscillator connection pin
24	VSS		GND
25,26	KD3,4	I	Key data input
27,28	KS6,5	O	Key strobe output
29-55	SEG39-13	O	LLCD segment output
56	VCC		Power supply
57-64	SEG12-5	O	LCD segment output

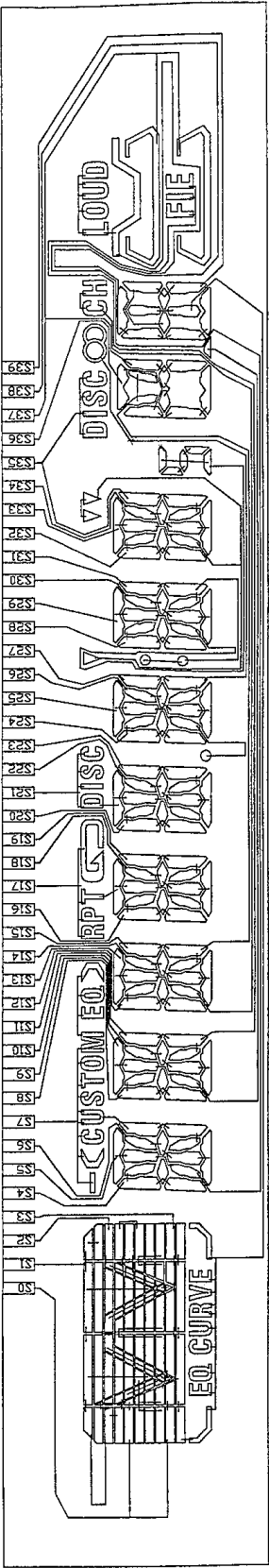
\*PD6278C



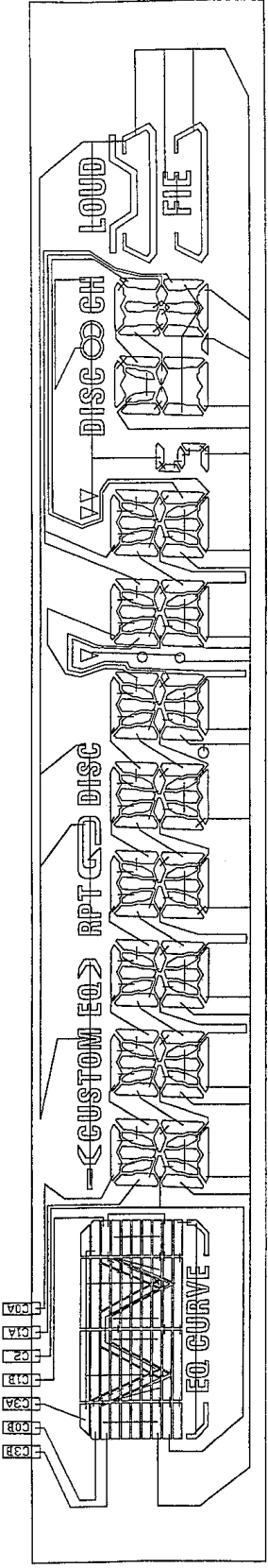
7.2.2 DISPLAY

● CAW1563

SEGMENT

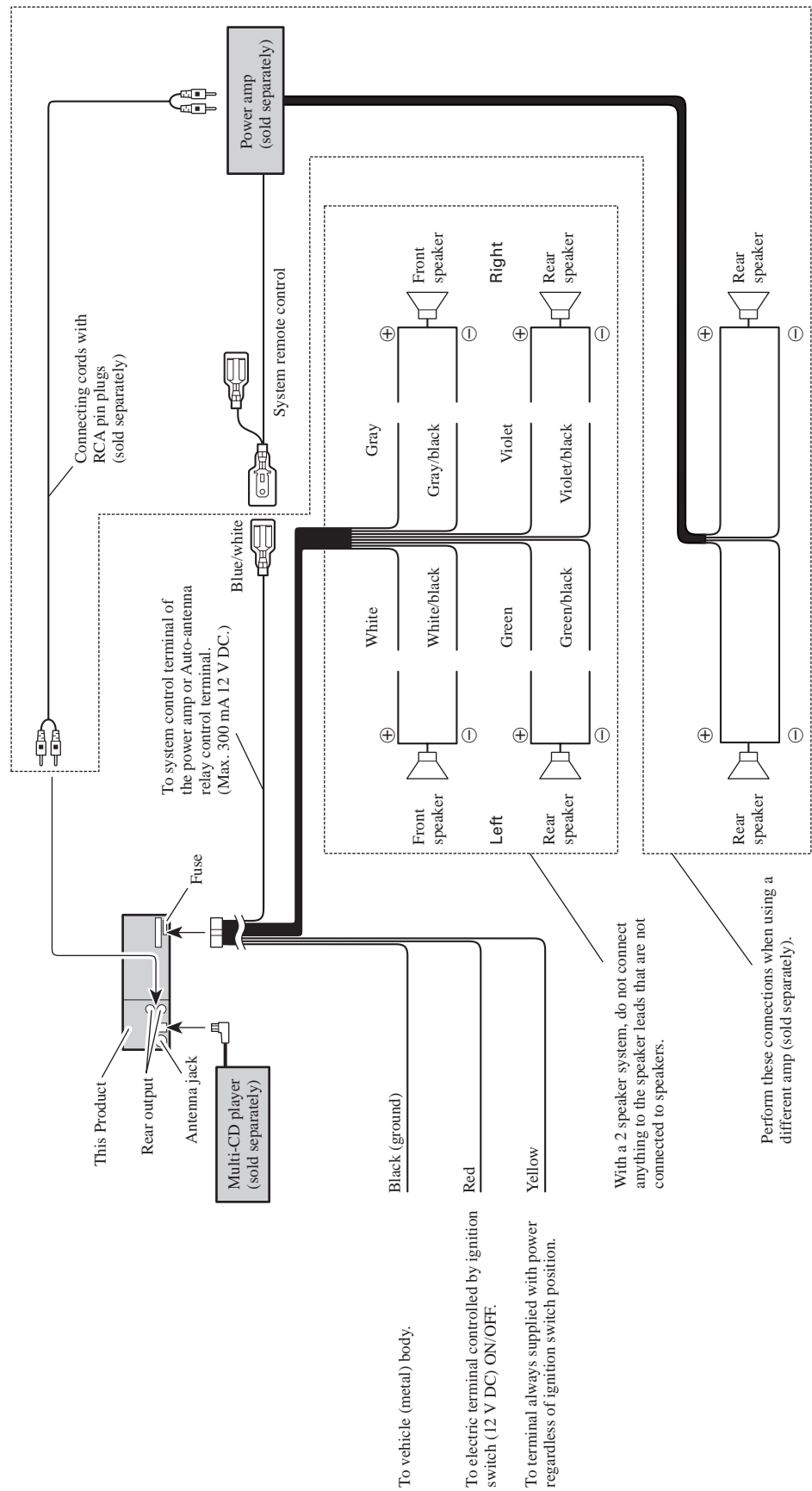


COMMON

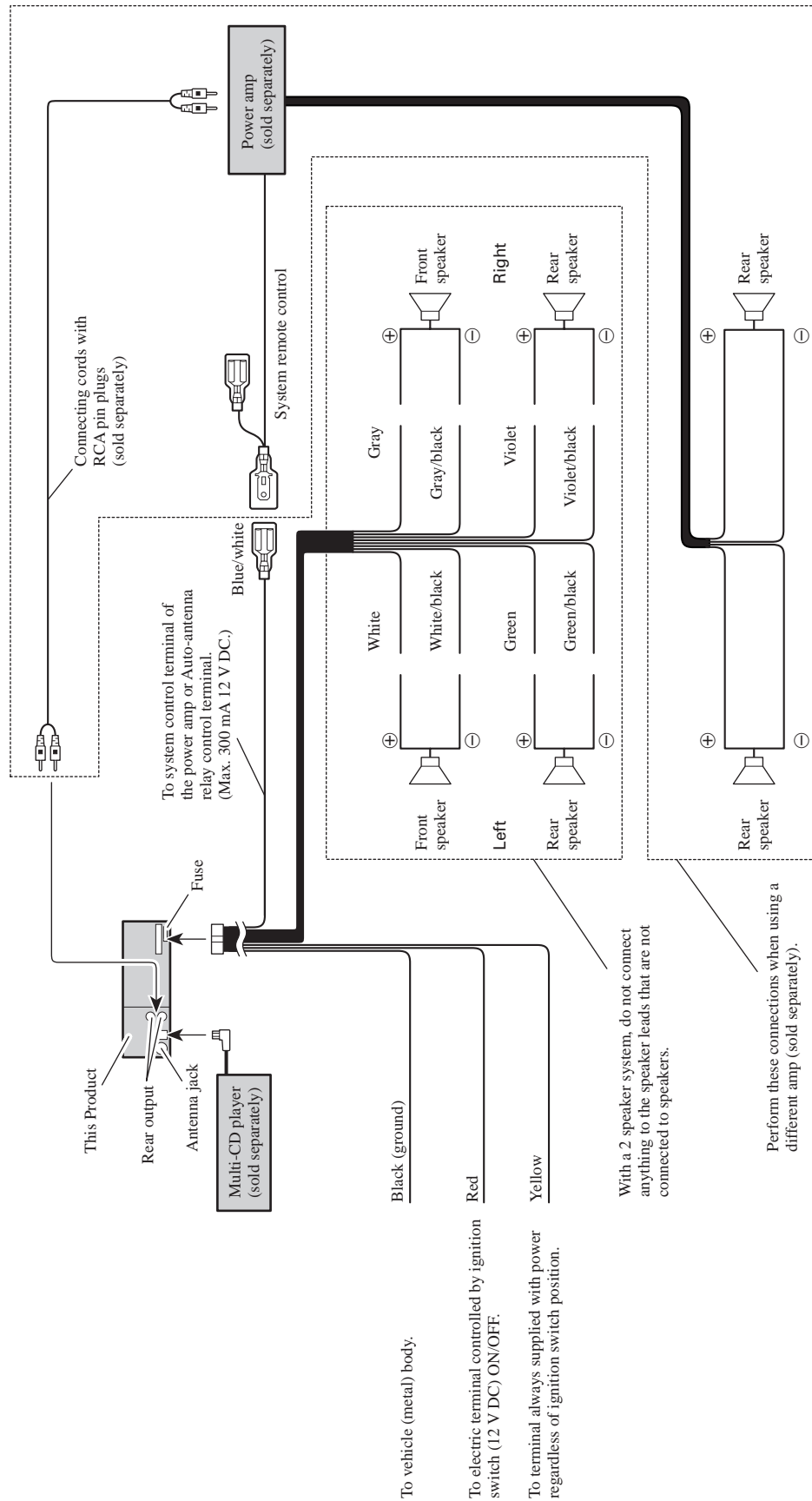


8. OPERATIONS AND SPECIFICATIONS

● Connection Diagram (KEH-P490/X1M/UC)

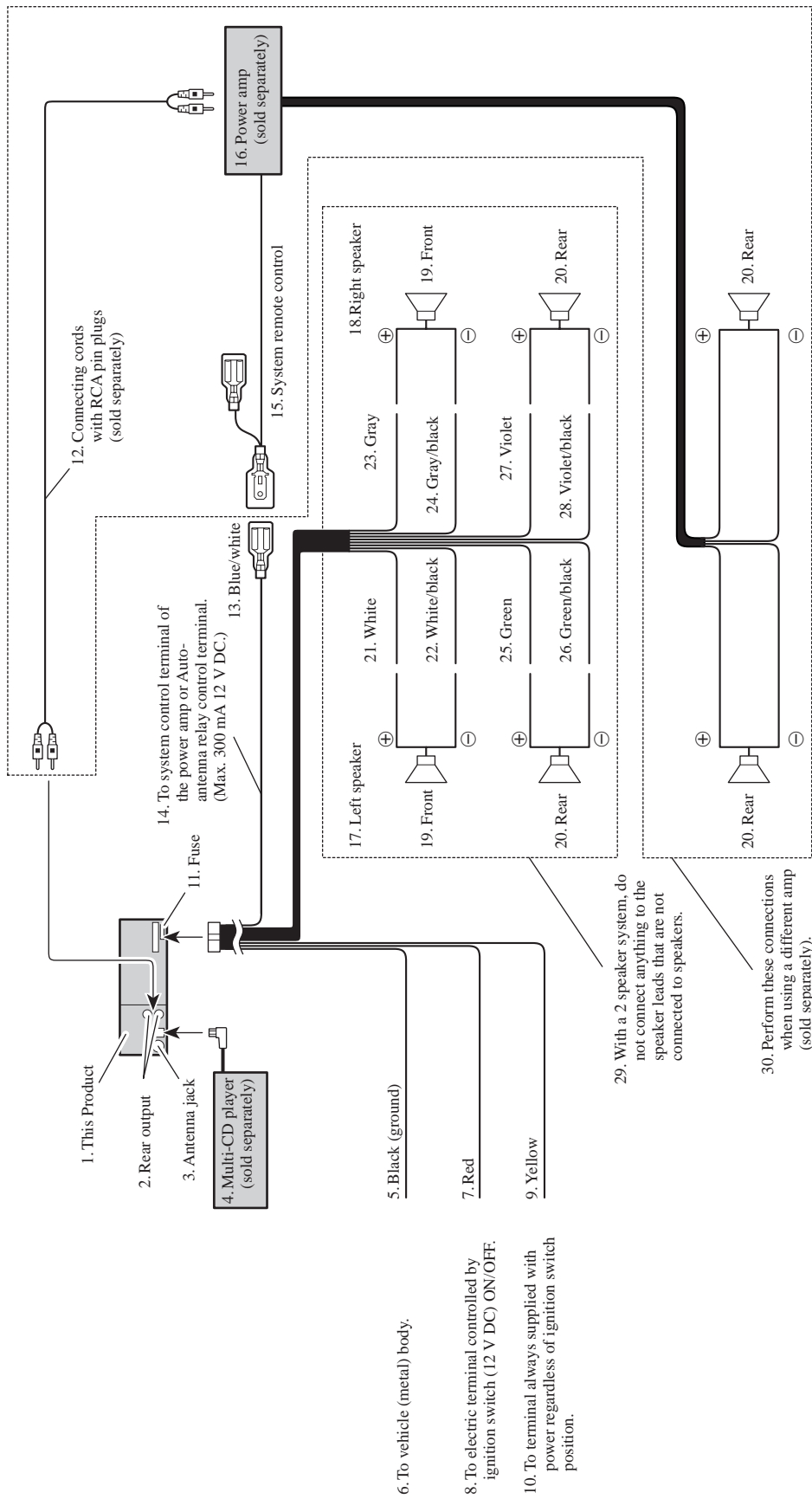


● Connection Diagram (KEH-P4900/X1M/UC)

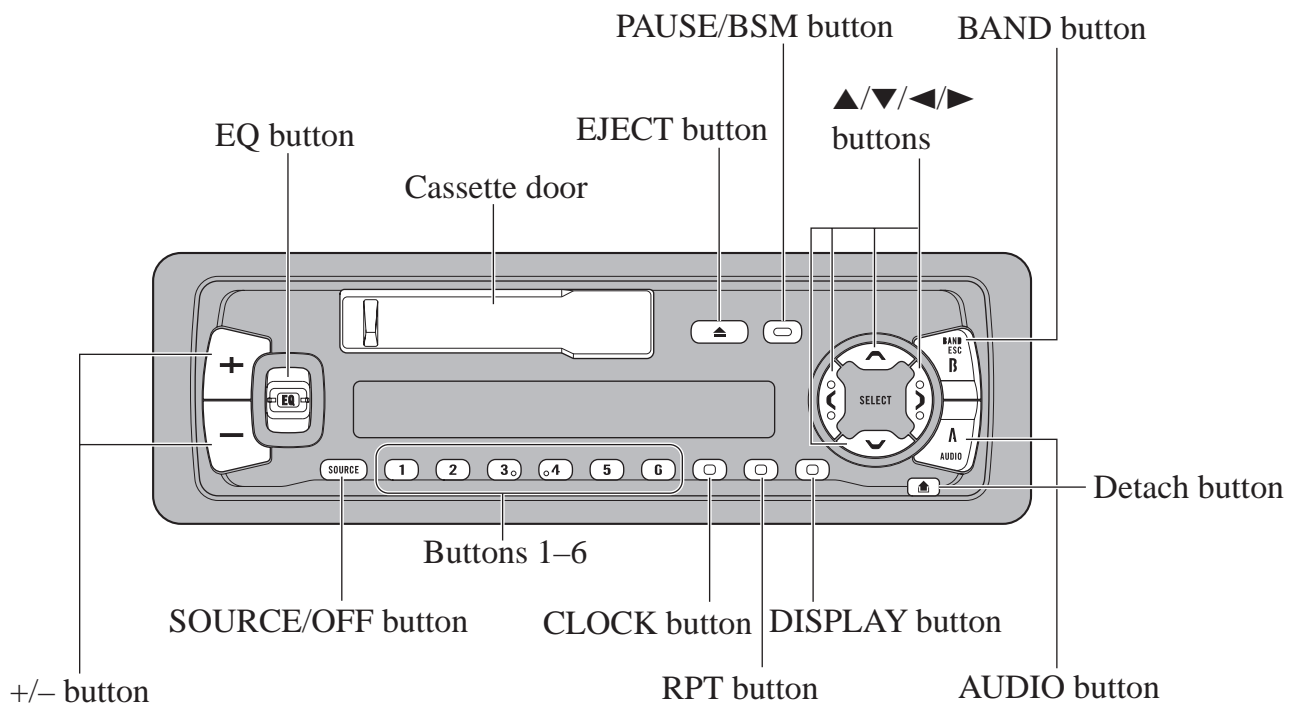




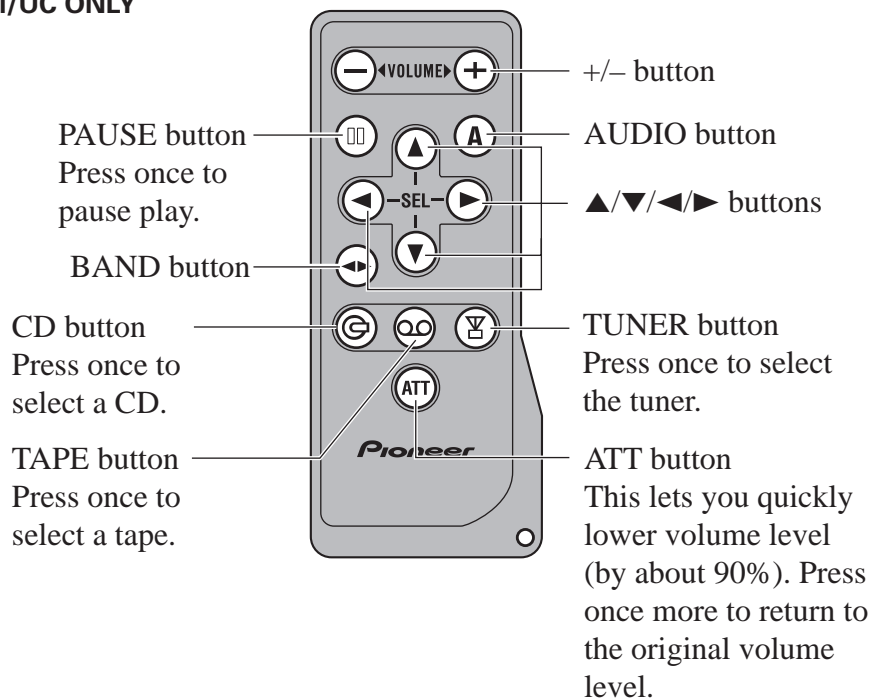
● Connection Diagram (KEH-P4950/X1M/ES)



## 8.1 OPERATIONS (KEH-P490/X1M/UC)



## KEH-P490/X1M/UC ONLY



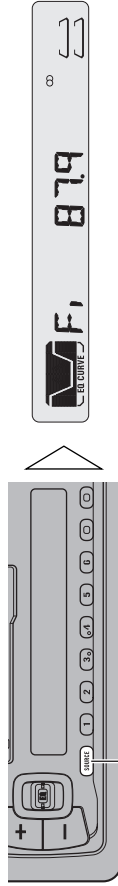
## To Listen to Music

The following explains the initial operations required before you can listen to music.

### Note:

- Loading a cassette in this product.

### 1. Select the desired source. (e.g. Tuner)



Each press changes the Source ...

### Head Unit

Each press of the SOURCE/OFF button selects the desired source in the following order:  
CD player (one disc only) → Tuner → Tape → Multi-CD player → External Unit → AUX

### Remote Controller

Each press of the button selects the desired source in the following order:

TUNER button : Tuner → OFF

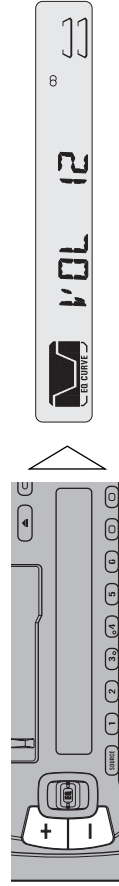
TAPE button : Tape → AUX → OFF

CD button : CD player (one disc only) → Multi-CD player → OFF

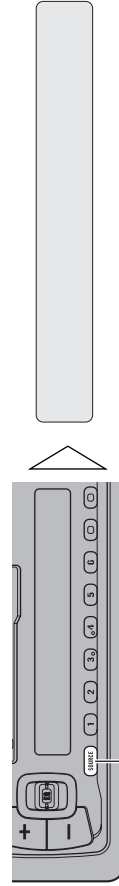
### Note:

- External Unit refers to a Pioneer product (such as one available in the future) that, although incompatible as a source, enables control of basic functions by this product. Only one External Unit can be controlled by this product.
- In the following cases, the sound source will not change:
  - When a product corresponding to each source is not connected to this product.
  - When no tape is set in this product.
  - When no magazine is set in the Multi-CD player.
  - When no disc is set in the CD player.
  - When the AUX (external input) is set to OFF.
- When this product's blue/white lead is connected to the car's Auto-antenna relay control terminal, the car's Auto-antenna extends when this product's source is switched ON. To retract the antenna, switch the source OFF.

### 2. Raise or lower the volume.



### 3. Turn the source OFF.



Hold for 1 second

## Basic Operation of Tuner

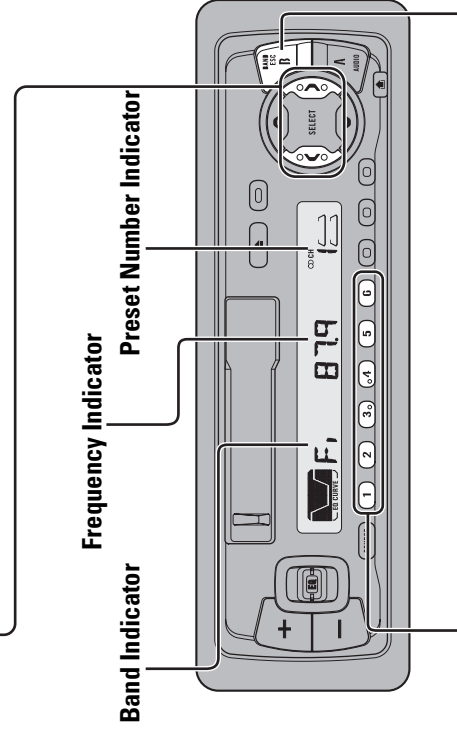
### Manual and Seek Tuning

- You can select the tuning method by changing the length of time you press the ◀/▶ button.

Manual Tuning (step by step)	0.5 seconds or less
Seek Tuning	0.5 seconds or more

### Note:

- If you continue pressing the button for longer than 0.5 seconds, you can skip broadcasting stations. Seek Tuning starts as soon as you release the button.
- Stereo indicator "◐" lights when a stereo station is selected.



### Preset Tuning

- You can memorize broadcast stations in buttons 1 through 6 for easy, one-touch station recall.

Preset station recall	2 seconds or less
Broadcast station preset memory	2 seconds or more

### Band

F<sub>I</sub> (FM1) → F<sub>II</sub> (FM2)  
→ F<sub>III</sub> (FM3) → AM

### Note:

- Up to 18 FM stations (6 in F<sub>I</sub> (FM1), F<sub>II</sub> (FM2) and F<sub>III</sub> (FM3)) and 6 AM stations can be stored in memory.
- You can also use the ▲ or ▼ buttons to recall broadcast stations memorized in buttons 1 through 6.

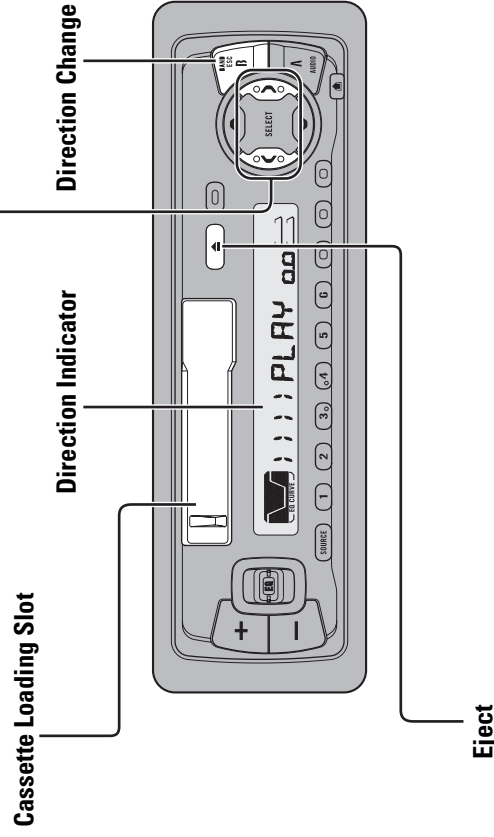
## Basic Operation of Cassette Player

### Fast Forward/Rewind and Music Search

- Each press of the ► button selects **Fast Forward or Forward-Music Search**.  
FF (Fast Forward) → F-MS (Forward-Music Search) → Normal Playback
- Each press of the ◀ button selects **Rewind or Rewind-Music Search**.  
REW (Rewind) → R-MS (Rewind-Music Search) → Normal Playback

#### Note:

- Fast Forward/Rewind and Music Search can be canceled by pressing the BAND button.



#### Note:

- The Tape function can be turned ON/OFF with the cassette tape remaining in this product.

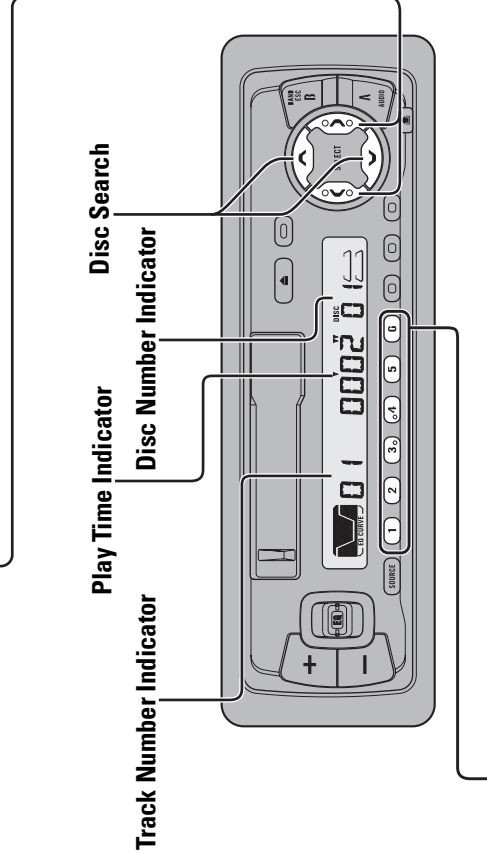
## Basic Operation of Multi-CD Player

This product can control a Multi-CD player (sold separately).

### Track Search and Fast Forward/Reverse

- You can select between Track Search or Fast Forward/Reverse by pressing the ◀/► button for a different length of time.

Track Search	0.5 seconds or less
Fast Forward/Reverse	Continue pressing



### Disc Number Search (for 6-Disc, 12-Disc types)

- You can select discs directly with the 1 to 6 buttons. Just press the number corresponding to the disc you want to listen to.

#### Note:

- When a 12-Disc Multi-CD Player is connected and you want to select disc 7 to 12, press the 1 to 6 buttons for 2 seconds or longer.

#### Note:

- The Multi-CD player may perform a preparatory operation, such as verifying the presence of a disc or reading disc information, when the power is turned ON or a new disc is selected for playback. "READY" is displayed.
- If the Multi-CD player cannot operate properly, an error message such as "ERROR-14" is displayed. Refer to the Multi-CD player owner's manual.
- If there are no discs in the Multi-CD player magazine, "NO DISC" is displayed.

8.2 SPECIFICATIONS

General

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	8.5 A
Dimensions (KEH-P490/X1M/UC, KEH-P4900/X1M/UC)	
(DIN) (chassis)	178 (W) × 50 (H) × 155 (D) mm
	[7 (W) × 2 (H) × 6-1/8 (D) in]
(nose)	188 (W) × 58 (H) × 20 (D) mm
	[7-3/8 (W) × 2-1/4 (H) × 3/4 (D) in]
(D) (chassis)	178 (W) × 50 (H) × 160 (D) mm
	[7 (W) × 2 (H) × 6-1/4 (D) in]
(nose)	170 (W) × 48 (H) × 15 (D) mm
	[6-3/4 (W) × 1-7/8 (H) × 5/8 (D) in]
Weight	1.2 kg (2.6 lbs)

Dimensions (KEH-P4950/X1M/ES)	
(DIN) (chassis)	178 (W) × 50 (H) × 155 (D) mm
(nose)	188 (W) × 58 (H) × 20 (D) mm
(D) (chassis)	178 (W) × 50 (H) × 160 (D) mm
(nose)	170 (W) × 48 (H) × 15 (D) mm
Weight	1.2 kg

Amplifier

Continuous power output is 17 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output	40 W × 4
Load impedance	4 Ω (4 – 8 Ω allowable)
Preout maximum output level/	
output impedance	2.2 V/1 kΩ
Equalizer (3 band equalizer)	
(Low)	±12 dB
(Mid)	±12 dB
(High)	±12 dB
Loudness contour	
(Low)	+3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid)	+10 dB (100 Hz), +6.5 dB (10 kHz)
(High)	+11 dB (100 Hz), +11 dB (10 kHz)
	(volume: -30 dB)

Cassette player

Tape	Compact cassette tape (C-30 – C-90)
Tape speed	4.76 cm/sec.(+0.14cm/sec.,-0.05cm/sec.)
Fast forward/rewinding time	Approx. 100 sec. for C-60
Wow & flutter	0.09% (WRMS)
Frequency response	30 – 16,000 Hz (±3 dB)
Stereo separation	45 dB
Signal-to-noise ratio	61 dB (IHF-A network)

FM tuner (KEH-P490/X1M/UC, KEH-P4900/X1M/UC)

Frequency range	87.9 – 107.9 MHz
Usable sensitivity	11 dBf
	(1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA)
Three-signal intermodulation	
(desired signal level)	50 dBf
(two undesired signal level)	100 dBf

FM tuner (KEH-P4950/X1M/ES)

Frequency range	87.5 – 108 MHz
Usable sensitivity	11 dBf
	(1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

AM tuner (KEH-P490/X1M/UC, KEH-P4900/X1M/UC)

Frequency range	530 – 1,710 kHz
Usable sensitivity	18 μV (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)

AM tuner (KEH-P4950/X1M/ES)

Frequency range	531 – 1,602 kHz (9 kHz)
	530 – 1,710 kHz (10 kHz)
Usable sensitivity	18 μV (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)
	50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.